City of Phoenix

Public Transit Department

TITLE VI PROGRAM

NOVEMBER 2018

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1.1 Program Overview

According to Section 601 of Title VI of the Civil Rights Act of 1964:

> "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

The Civil Rights Restoration Act of 1987 clarified the broad, institution-wide application of Title VI. Title VI covers all of the operations of covered entities without regard to whether specific portions of the covered program or activities are Federally funded. The term "program or activity" means all of the operations of a department, agency, special purpose district, or government; or the entity of such State or local government that distributes such assistance and each such department or agency to which the assistance is extended, in the case of assistance to a State or local government (FTA C 4702.1B, Chap. II-1). The Federal Transit Administration (FTA), from which city of Phoenix receives Federal funds, is required to fulfill the US Department of Transportation's (USDOT) Title VI regulations (49 CFR part 21).

To ensure compliance with the requirements of Title VI, city of Phoenix is required to adopt a Title VI Program. The contents of this document follow the requirements and guidelines of FTA's Title VI Circular (FTA C 4702.1B).

1.2 City of Phoenix History

Hundreds of years before any of the cities in the eastern part of our country were so much as clearings in the wilderness, a well-established, civilized community occupied the land we know as Phoenix. The Pueblo Grande ruins, which were occupied between 700 A.D. and 1400 A.D., testify to our City's ancient roots.

The wide Salt River ran through the Valley of the Sun, but there was little rain and no melting snow to moisten the brown earth from river to mountain range on either side.

Those former residents were industrious, enterprising and imaginative. They built an irrigation system, consisting mostly of some 135 miles of canals, and the land became fertile. The ultimate fate of this ancient society, however, is a mystery. The accepted belief is that it was destroyed by a prolonged drought. Roving Indians, observing the Pueblo Grande ruins and the vast canal system these people left behind, gave them the name "Ho Ho Kam" -- the people who have gone.

Phoenix's modern history begins in the second half of the 19th century. In 1867, Jack Swilling of Wickenburg stopped to rest his horse at the foot of the north slopes of the White Tank Mountains. He looked down and across the expansive Salt River Valley and his eyes caught the rich gleam of the brown, dry soil turned up by the horse's hooves. He saw farm land, predominately free of rocks, and in a place beyond the reach of heavy frost or snow. All it needed was water.

Returning to Wickenburg, he organized the Swilling

Irrigation Canal Company, and moved into the Valley. The same year, the company began digging a canal to divert some of the water of the Salt River onto the lands of the Valley. By March 1868, water flowed through the canal, and a few members of the company raised meager crops that summer.

Phoenix Is Born

By 1868, a small colony had formed approximately four miles east of the present city. Swilling's Mill became the new name of the area. It was then changed to Helling Mill, after which it became Mill City, and years later, East Phoenix. Swilling, having been a confederate soldier, wanted to name the new settlement Stonewall after Stonewall Jackson. Others suggested the name Salina, but neither name suited the inhabitants. It was Darrell Duppa who suggested the name Phoenix, inasmuch as the new town would spring from the ruins of a former civilization. That is the accepted derivation of our name.

Phoenix officially was recognized on May 4, 1868, when the Yavapai County Board of Supervisors, the county of which we were then a part, formed an election precinct here.

President William Howard Taft approved Arizona's statehood on Feb. 14, 1912. On March 18 of the same year, Gov. George Hunt called the first State Legislature into session. This was an auspicious step in the state's history, and in the following year, the city of Phoenix took an equally important one. At a special election on October 11, 1913, the people of Phoenix, by a vote of nearly two to one, ratified a new charter. The charter gave Phoenix the council-manager form of government. Thus, Phoenix became one of the first cities in the nation to adopt this progressive form of government.

Growing into a Metropolis

Like its legendary namesake rising out of the ashes, Phoenix has emerged as one of the bright new cities of the 21st century. Phoenix is the core of Maricopa County and the state's population and economic center.

Home to more than 1.4 million residents, Phoenix spans more than 500 square miles and ranks as the sixth-largest city in the United States. Phoenix is a premier destination, offering the best of both worlds: a growing economy and a great place to live with more than 300 sun-filled days a year and an almost limitless supply of outdoor activities in

the beautiful Sonoran Desert.

Phoenix's location, coupled with its regional transportation plan including highways, light rail, buses and railroad networks, plays a principal role in its population and economic growth.

city of Phoenix Public Transit Department Mission

To keep Phoenix moving through reliable, innovative transit services for our community.

city of Phoenix Public Transit Department Vision

The recognized leader in multi-modal transit solutions connecting people and destinations.

1.3 City of Phoenix Public Transit Department

The Phoenix Public Transit Department is a member of the 16 agency regional transit system under the system name of Valley Metro.

In 1993, the Regional Public Transit Authority board adopted the name Valley Metro as the identity for the transit system in the Phoenix metropolitan area. Under the Valley Metro brand, local governments joined to fund the Valley-wide transit system that the public sees on the streets today. Valley Metro Board member agencies include Avondale, Buckeye, Chandler, El Mirage, Gilbert, Glendale, Goodyear, Maricopa County, Mesa, Peoria, Phoenix, Scottsdale, Surprise, Tempe, Tolleson and Wickenburg.

The city of Phoenix is the primary recipient of federal funding for public transit in the region, and therefore is responsible for oversight of all Valley Metro members that receive federal funding for public transit, as well as recipients of federal 5310 grant funding for transportation services to seniors and people with disabilities.

With an annual operating budget of $315 million and with an administrative staff of 115 positions, the Phoenix Public Transit Department oversees and monitors operations of three private companies that provide transit service to the city of Phoenix and other Valley Metro member cities, and provides oversight to the rest of the system's service provided by the regional public transit authority under the name Valley Metro.

The city of Phoenix manages transit services to include 37 local bus routes, six RAPID commuter routes, three neighborhood circulators, 1 downtown business circulator and alternative transportation for people with disabilities and senior citizens. With a transportation fleet of 507 buses covering 20.3 million miles of service within the city of Phoenix, the department provides more than 70 percent of the region's transit. Valley Metro operates the majority of the remaining transit service on behalf of Valley Metro member cities.

The Phoenix Public Transit Department also takes a leading role in the development and oversight of the region's 26-mile light rail line. Working with Valley Metro and other Valley Metro agency partners, Phoenix helps to deliver seamless regional transit services under the name Valley Metro.

The city of Phoenix funds much of its transit service through Transit 2050 - a local sales tax approved by Phoenix voters, a portion of a regional sales tax known as Proposition 400, and other federal, state and local sources.

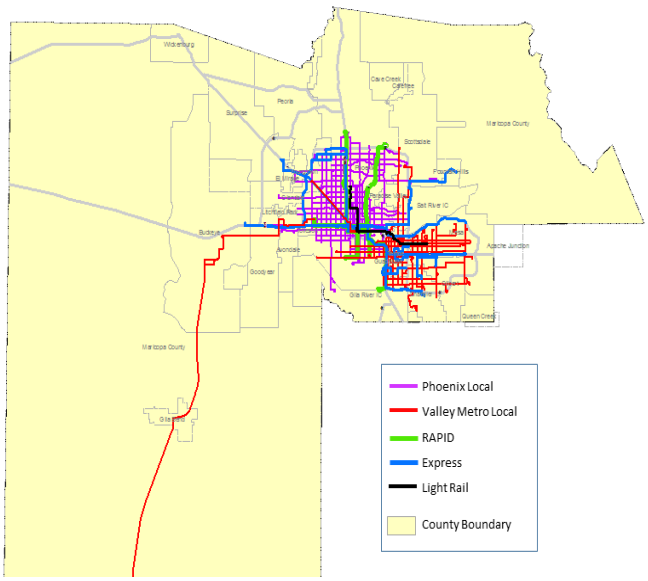


Figure 1: Phoenix/Valley Metro System Transit Map (as of June 2018)

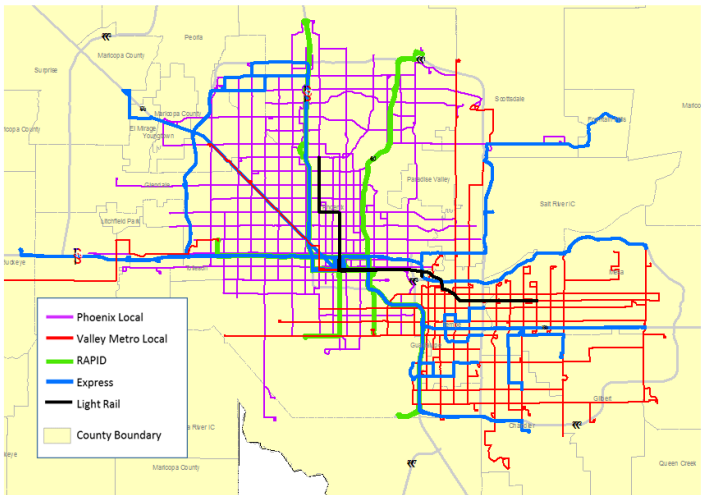


Figure 2: Maricopa County and Fixed Route Transit Service

1.4 Services Provided

Local Fixed Route Bus Service

The city of Phoenix operates thirty-seven local routes that connect customers to work, school, retail and recreational opportunities, and other destinations. Fixed route service is provided with 40-foot bus or 60-foot articulated bus. While service frequency, hours, and days vary by route, the bus system operates seven days a week from 4:00 a.m. to 12:00 a.m. Fixed route buses can accommodate up to three bicycles.

Express Bus Service

Twenty-one regional express bus services traveling mostly along interstates and connecting some of the region's largest employers, including Arizona Department of Transportation and Maricopa Country. Express routes have limited stops for faster connections. Routes are designed for commuter service, only operating during peak periods.

Regional Fixed Route Bus Service

Valley Metro in coordination with the city of Phoenix operates all routes outside of Phoenix' borders, these routes connect customers to work, school, retail and recreational opportunities, and other destinations. Fixed route service is provided with 40-foot or 60-foot articulated bus. While service frequency, hours, and days vary by route, the bus system operates seven days a week from 4:00 a.m. to 12:00 a.m. Fixed route buses can accommodate up to three bicycles.

Neighborhood Circulators

Seventeen community circulators operate continuously within distinct geographic areas to meet the transportation needs of the community. Service frequency, hours, and days vary by route. All buses providing this service are ADA accessible.

Light Rail Lines

Valley Metro operates the regions light rail that extends 26.3 miles with operating lines serving the cities of Phoenix, Tempe and Mesa. There are 23 stations with triple car platforms and ADA accessibility. In addition to 34 park-and ride locations that offer free parking, customers connect to light rail by walking, biking or riding one of the fixed routes that would connect to one of the 23 stations. Light Rail operates seven days a week from 4 a.m. to 12:00 a.m.

Vanpool Program

Van pool is a Transportation Demand Management program that helps decrease traffic congestion in the Region by offering commuters ways to reduce the number of times they commute to work alone. The Valley Metro Vanpool help people connect with one another so they can share rides, join a vanpool, telecommute when possible, or even bicycle to work.

Paratransit

Federally required service which provides shared ride door-to-door service to ADA certified passengers, who because of a disability are unable to independently navigate local public transit services. Service operates within the defined Phoenix Dial-a-Ride service area and operates during the same hours as local bus and light rail. Paratransit vehicles can accommodate up to eight ambulatory passengers, or five ambulatory and two wheelchair passengers.

Alternative Transportation

Provides alternative transportation solutions to older adults and ADA certified residents of Phoenix. Service is provided through a network of private transportation providers through independently owned and operated vehicles by participating transportation network drivers and taxi companies. Service is provided with minimal to no restriction on trip purpose or destination within the operating hours of the private transportation provider which is generally 24 hours a day and seven days a week.

Section 2: General Reporting Requirements

2.1 Policy Overview and Statement

The FTA requires that all direct and primary recipients document their compliance with DOT's Title VI regulations by submitting a Title VI Program to their FTA regional civil rights officer once every three years. For all recipients, the Title VI Program must be approved by the recipient's board of directors or appropriate governing entity or official(s) responsible for policy decisions prior to submission to FTA. Please refer to Attachment J: Adopted Council (Board) Resolution, evidencing approval of city of Phoenix's Title VI Program. The General Reporting Requirements section of this report contains Title VI Program components required in Chapter III, of FTA Circular 4702.1B.

Figure 3: City of Phoenix, Title VI Policy Statement

City of Phoenix
PUBLIC TRANSIT DEPARTMENT

Title VI Policy Statement

The following policy statement supports the implementation of these activities:

The City of Phoenix Public Transit Department is committed to ensuring that no person is discriminated against on the grounds of color, race, or national origin as provided by Title VI of the Civil Rights Act of 1964 and related legislation. Specifically, Title VI asserts that, "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

The City of Phoenix Public Transit Department strives to ensure nondiscrimination in all of its programs and activities, whether those programs and activities are federally funded or not. As a primary recipient of federal funding, the City of Phoenix Public Transit Department is responsible for initiating and monitoring Title VI activities, preparing required reports, and other responsibilities as required by the U.S. Department of Justice under 28 Code of Federal Regulations (CFR) § 42.401 *et seq.* and 28 CFR § 50.3. The U.S. Department of Transportation Title VI implementing regulations can be found at 49 CFR part 21.

Kenneth Kessler
Acting Public Transit Director

7/17/18
Date

302 N. 1st Ave, Suite 900• Phoenix, Arizona 85009 • 602-262-7242

2.2 Title VI Notice to the Public

The following notice is posted on the Public Transit Department website, in all vehicles (bus and rail), and in administrative offices. Table 1 list specific locations of where postings are displayed. The city of Phoenix notice is stated below:

Figure 4: Title VI Notice to the Public

Interior vehicle notice (English)

2.2.1 Table 1: Facility Locations

Table 1: Facility Locations							
City of Phoenix Public Transit Department							
Facility	Zip Code	Facility Type			Year Built	Site Size (acre)	Building (sq. ft.)
		Operating	Transit Ctr	Park-and-Ride			
302 Building (PTD Headquarters) 302 N. First Avenue	85003				1989	30,100 SF	107,318
North Transit Facility 2010 W. Desert Cove	85029	X			1980	9.9	34,480
South Transit Facility 2225 W. Lower Buckeye	85009	X			1983	15.5	126,000
West Transit Facility 405 N. 79th Avenue	85043	X			2007	25.58	123,711
Central Station Transit Center 300 N. Central Avenue	85003		X		1997	2.6	4,000
Desert Sky Mall Transit Center 7887 W. Thomas Road	85033		X		2015	4.06	1624
Ed Pastor Transit Center 10 W. Broadway	85041		X		2003	4.4	4,200
Metrocenter Transit Center 9451 N. Metro Parkway	85051		X		1983	2.6	80
Paradise Valley Mall Transit Center 4623 E. Paradise Valley Pkwy North	85032		X		1990	1.0	153
Sunnyslope Transit Center 8927 N. Third Street	85020		X		1989	1.8	226
Happy Valley/I17 Park-And-Ride 24725 N. 29th Avenue	85027			X	2011	7.71	293
40th St/Pecos Rd Park-and-Ride 17010 S. 40th Street	85226			X	2003	16.84	293
79th Ave/I-10 Park-and-Ride 7805 W. McDowell Road	85035			X	1990	9.0	433
Bell Road/I-17 Park-and-Ride 16808 N. Black Canyon Highway	85023			X	2000	5.5	293
Bell Road/SR51 Park-and-Ride 3535 E. Bell Road	85032			X	2003	5.6	293
Shea Blvd/SR51 Park-and-Ride 10203 N. 32nd Street	85028			X	1997	7.5	293
27th Ave/Base Rd. Park-and-Ride 2727 W. Baseline Rd.	85339			X	2012	2.63	254
24th St/Baseline Park-and-Ride 7415 S. 24th Street	85042			X	2015	7.15	255

2.3 Title VI Complaint Procedures

Any person who believes that he or she has been discriminated against on the basis of race, color, or national origin by the city of Phoenix may file a Title VI complaint by completing and submitting the agency's Title VI Complaint Form. All Title VI complaints are processed regionally under the Valley Metro Customer Assistance System (CAS) and forwarded to the applicable administrator of the service. The city of Phoenix investigates complaints received no more than 180 days after the alleged incident. The city will process complaints that are complete.

Passengers using federally funded public transportation are entitled to equal access, seating and treatment. Under Title VI of the Civil Rights Act of 1964 (as amended) and related statutes, the city of Phoenix and Valley Metro must ensure that no person shall, on the grounds of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any federally funded program, activity or service it administers.

Complaints for alleged non-compliance with Title VI and related statutes may be lodged with the city of Phoenix. Any such complaint must be filed within 180 days of the alleged discriminatory act (or latest occurrence).

The city of Phoenix has 30 days to investigate each complaint. If more information is needed to resolve the case, the city may contact the complainant. If the investigator is not contacted by the complainant or does not receive the additional information within 10 business days, the city can administratively close the case. A case can be administratively closed also if the complainant no longer wishes to pursue their case.

Following the investigation of the complaint, one of two letters will be sent to the complainant: a closure letter or a letter of finding. A closure letter states that there was not a Title VI violation; therefore, the case will be closed. A letter of finding states that there was a Title VI violation and explains what corrective action will be taken to remedy the situation. A complainant can appeal the decision within 60 days of receiving the letter. All appeals must be submitted to the city of Phoenix.

A person may also file a complaint directly with the Federal Transit Administration, at FTA Office of Civil Rights, 1200 New Jersey Avenue SE, Washington, DC 20590.

For more information on the city of Phoenix's Civil Rights Program and the procedures by which to file a complaint, contact the Title VI coordinator at (602) 262-7242.

Filing Complaints

The city of Phoenix utilizes the Valley Metro Customer Assistance System (CAS) to capture all complaints received regionally. Valley Metro Customer Service is your point of contact and any such complaints filed within 180 days will be forwarded to the applicable administrator.

How to File a Complaint

To file a complaint directly with the city of Phoenix via mail, please address the correspondence to:

Attention: Title VI Coordinator
City of Phoenix Public Transit Department

302 N. 1st Avenue, Suite 900
Phoenix, AZ 85003

Or, a Title VI complaint form can be found online at: www.phoenix.gov/publictransit

To file a complaint directly with Valley Metro, find the complaint form online at:

www.valleymetro.org/form/title-vi-complaint-form

To submit a claim by mail or in person, please fill out the printable complaint form.
and mail/take to:

Regional Public Transportation Authority
4600 E. Washington St., Suite 101
Phoenix, Arizona 85034

Other options to file a complaint include:
Email: csr@valleymetro.org
Phone: (602) 253-5000
TTY: (602) 251-2039

Individuals may also file complaints directly with the Federal Transit Administration (FTA) within the 180-day timeframe.

Federal Transit Administration (FTA)
Attention: Title VI Coordinator
East Building, 5th Floor –TCR
1200 New Jersey Avenue, SE
Washington, D.C. 20590

Customer Service

Complaints received by Valley Metro Customer Service will be assigned to a staff member(s) for investigation in accordance with federal standards (28 CFR Part 35 and FTA Circular 4702.1B). After the complaint is processed, Customer Service will respond to the complainant and, if warranted by the investigation, take appropriate action. The city of Phoenix, as the designated recipient of federal funds for this region, is responsible for monitoring this process.

Requesting Information

To request information in alternative formats, please contact the city of Phoenix at (602) 534-3026 or Valley Metro Customer Service at csr@valleymetro.or or phone: (602) 253-5000, TTY: (602) 251-2039.

TRACKING

As a complaint is received, it is logged into the CAS system. Within 24 hours of logging the complaint, Valley Metro Customer Service administrator sends the complaint to the cities/transit provider for investigation and documentation.

Once reviewed, the complaint is returned to the Customer Service administrator to ensure the information is complete and closes the complaint. Each city's administrator audits the complaints as well to ensure they meet the guidelines for Title VI.

The administrator reviews an outstanding weekly report identifying outstanding complaints. During the review process the administrator will send out notifications to the agency and a copy to the relevant city to remind the entity that the complaint is not yet resolved or closed out. This process is reinitiated each week to ensure timely compliance.

The administrator process includes an audit process of all completed Title VI complaints. Should an inaccuracy be found, the administrator works with Customer Service to reopen the complaint and sends it back if not completed accurately.

INVESTIGATING

STEP ONE: Summary of the complaint, completed by the Regional Services Customer Relations staff.

STEP TWO: Statement of issues. List every issue derived from the complaint summary. Include questions raised by each issue:

Who? What? When? Where? How?

Add new issues that surface during investigation. The final list of issues becomes the investigation outline.

STEP THREE: Respondent's **reply** to each issue.

- Obtain information from each respondent, listen to each tape, review each document.
- All staff will document information collected in the customer contact (respondent area).
- After all respondent information is documented, complete the documentation (remaining steps).
- Determine the action taken.
- Follow up with the customer.

Note: "Respondent" is not confined to the transit vehicle operator. "Respondent" is defined as **any** source of information that can contribute to the investigation, such as:

- **Operator (interview/history)**
- **Radio/Dispatch/OCC reports**
- **GPS tracking software and programs**
- **Maintenance (staff/records)**
- **City Transit staff**
- **Witnesses**
- **Complainant (interview/history)**
- **Spotter reports**
- **Video (camera) and/or audio recordings**
- **Courtesy cards**
- **Incident reports (supervisor, transit police, fare/security inspectors)**
- **Other transit employees**
- **Route history**

STEP FOUR: Findings of fact. Investigate every "issue" (stated in the "statement of issues noted in step two). Separate facts from opinions.

STEP FIVE: Citations of pertinent regulations and rules. Develop a list of all regulations, rules, policies and procedures that apply to the investigation:

- Title VI requirements
- Company (operator) rules and procedures
- Valley Metro policies and service standards

STEP SIX: Conclusions of law.

- Compare each fact from "findings of fact" to the list of regulation, rules, etc.
- Make decisions on whether violation(s) occurred
- List of violations becomes "conclusions of law

STEP SEVEN: Description of remedy for each violation.

- Specific corrective actions for each violation found
- Includes plans for follow-up checks
- Do not conclude report with **"no action taken"**
- If no violations found, conclude the report in a positive manner
- Review policies and procedures
- Review Title VI provisions

Response to Customer:

Detailed summary of conversation with customer. Send copy of letter to customer.

Action Taken:

- Must include specific corrective action for **each** violation found
- Include a follow-up action plan
- If no violations found, note policies, procedures, etc. reviewed with operator
- **Never state "no action taken"**
- *Documented information should always include initials and dates*

2.4 Title VI Complaint Forms

Title VI complaint forms can be filled out online either with the city of Phoenix, or Valley Metro.

The city of Phoenix online form can be accessed via the Public Transit Department's website at: Phoenix.gov/publictransit.

Valley Metro's online form can be accessed at: www.valleymetro.org/form/title-vi-complaint-form

In addition, forms can be downloaded in a pdf format from Valley Metro's website.

(see samples in English and Spanish on the next page).

2.4 Title VI Complaint Forms

TITLE VI COMPLAINT FORM

Any person who believes that he or she has been discriminated against by Valley Metro or any of its service providers, and believes the discrimination was based upon race, color or national origin may file a formal complaint with Valley Metro Customer Service.

Please provide the following information to process your complaint. Alternative formats and languages are available upon request. You can reach Customer Service at (602) 253-5000/TTY: (602) 251-2039, or email at csr@valleymetro.org.

Section I: Customer Information

Name:

Address:

City: | State: | Zip:

Work Phone: | Home Phone: | Cell Phone:

Email Address:

Section II: Incident Information

Date of Incident: | Time of Incident: AM/PM | City:

Incident Location: | Direction of Travel:

Route #: | Bus/Light Rail #:

Service Type: ☐ Local ☐ Express/RAPID ☐ Light Rail ☐ Circulator/Connector ☐ Dial-a-Ride

Operator Name:

Operator Description:

What was the discrimination based on? (Check all that apply)

☐ Race ☐ Color ☐ National Origin ☐ Other:

Explain as clearly as possible what happened and why you believe you were discriminated against. Describe all persons who were involved. Include the name and contact information of the person(s) who discriminated against you (if known), as well as names and contact information of any witnesses. If more space is needed, please use the back of this form.

Have you filed this complaint with the Federal Transit Administration? ☐ Yes ☐ No

If yes, please provide information about a contact person at the Federal Transit Administration where the complaint was filed.

Name: | Title:

Address: | Telephone:

Have you previously filed a Title VI complaint with this agency: ☐ Yes ☐ No

You may attach any written materials or other information that you think is relevant to your complaint.

Signature and date required below:

Signature | Date

602.253.5000
TTY: 602 251.2039
valleymetro.org

VALLEY METRO

R2T2143

FORMA DE QUEJAS DEL TITULO VI

Cualquier persona que crea que ha sido discriminada basándose en su raza, color u origen nacional por Valley Metro o sus proveedores de servicio puede registrar una queja del Título VI con el Servicio al Cliente de Valley Metro.

Por favor provea la siguiente información necesaria para que se procese su queja. Hay formatos e idiomas alternos disponibles si se solicitan. Llene esta forma y envíela por correo postal a o entréguela en: Regional Public Transportation Authority, 4600 E. Washington St., Suite 101, Phoenix, Arizona 85034. Usted puede comunicarse con el Servicio al Cliente llamando al (602) 253-5000/TTY: (602) 251-2039, ó por correo electrónico en *csr@valleymetro.org*.

Sección I: Información del Cliente

Nombre:

Domicilio: | Estado: | Código Postal:

Teléfono del Trabajo: | Teléfono del Hogar: | Teléfono Celular:

Domicilio Electrónico:

Sección II: Información del Incidente

Fecha del Incidente: | Hora del Incidente: AM/PM | Ciudad:

Ubicación del Incidente: | Dirección de Viaje:

 # de Ruta: | # de Autobús/Tren Ligero:

Tipo de Servicio: ☐ Local ☐ Express/RAPID ☐ Tren Ligero ☐ Circulador/Connector ☐ Dial-a-Ride

Nombre del/la Conductor/a:

Descripción del/la Conductor/a:

¿En qué se basó la discriminación? (Marque todo lo que sea aplicable)

☐ Raza ☐ Color ☐ Origen Nacional ☐ Otro:

Explique tan claramente como sea posible lo que sucedió y por qué cree usted que se le discriminó. Describa a todas las personas que estuvieron involucradas. Incluya el nombre y la información de contacto de la/s persona/s que le discriminó/aron a usted (si los sabe), así como los nombres y la información de contacto de cualquier testigo. Si necesita más espacio, por favor use el reverso de esta forma.

¿Ha usted registrado esta queja con la Administración Federal de Tránsito? ☐ Sí ☐ No

Si contestó sí, por favor provea información sobre la persona de contacto en la Administración Federal de Tránsito donde se registró la queja:

Nombre: | Título:

Domicilio: | Teléfono:

¿Ha usted registrado previamente una queja del Título VI con esta agencia?: ☐ Sí ☐ No

Usted puede adjuntar cualquier material por escrito o cualquier otra información que crea que sea relevante a su queja.

Se requieren la firma y la fecha abajo:

Firma | Fecha

valleymetro.org
602.253.5000
TTY: 602 251.2039

VALLEY METRO

R2T2143

2.5 Title VI Investigations, Complaints and Lawsuits

Investigations

There were no Title VI investigations during the reporting period.

Lawsuits

One lawsuit was filed against city of Phoenix/Valley Metro, Title VI Program alleging discrimination, was dismissed by the Office of the Arizona Attorney General, Civil Litigation Division (Nicholas G. McGuire v. Valley Metro, filed 5/15/17, dismissed, dismissal affirmed on 2/6/18.

Complaints

Complaints submitted into the Customer Assistance System were received, investigated and resolved by the cities and or transit provider responsible. Each cities administrator audits the complaints as well as ensure they meet the guidelines for Title VI. Table 2 lists complaints received during the reporting period.

2.5.1 Table 2: Title VI Complaints

For Routes Operated by the city of Phoenix November 2015 to June 2018

Complaint #	Incident	Subcategory	Complaint	Action Taken
283496	12/13/14	Discrimination	Policy (operator)	No evidence of discrimination could be determined based on investigation. Issue addressed with operator per company policy.
279915	11/3/15	Discrimination	Pass Up	No evidence of discrimination could be determined based on investigation. Issue addressed with operator per company policy.
280372	11/6/15	Discrimination	Pass Up	No evidence of discrimination could be determined based on investigation. Issue addressed with operator per company policy.
281791	11/23/15	Discrimination	Fare Policy	No evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
283505	12/23/15	Discrimination	Pass Up	No evidence of discrimination could be determined based on investigation. Issued addressed with operator per company policy.
284853	1/4/16	Discrimination	Forced off/ Security	No conclusive evidence found to indicate violation had occurred. No action to be taken.
285044	1/6/16	Discrimination	Fare Policy	Video was reviewed for possible violation; no conclusive evidence of discrimination found. Operator followed fare policy. No action to be taken.

For Routes Operated by the city of Phoenix November 2015 to June 2018 (continued)

Complaint #	Incident Date	Subcategory	Complaint	Action Taken
286112	1/23/16	Discrimination	Pass Up	No evidence of discrimination could be determined based on investigation. Operations manager addressed issue with operator per company policy.
286328	1/26/16	Discrimination	Fare Policy	No evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
287567	2/8/16	Discrimination	Attitude (operator)	No evidence of discrimination could be determined based on investigation. Issue addressed with operator per company policy.
287505	2/8/16	Discrimination	Pass Up	Per information provided by customer and investigation conducted, no evidence of discrimination could be determined based on investigation. Issue addressed with operator per company policy.
287722	2/10/16	Discrimination	Attitude (operator)	No evidence of discrimination could be determined based on investigation. No action to be taken.
289708	3/2/16	Discrimination	Pass Up	No evidence of discrimination could be determined based on investigation.
289806	3/3/16	Discrimination	Fare Policy	No evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
289817	3/3/16	Discrimination	Fare Policy	No evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
290794	3/15/16	Discrimination	Pass Up	No evidence of discrimination could be determined based on investigation. Incident location is not a valid bus stop.
291088	3/17/16	Discrimination	Attitude (operator)	Video was reviewed and no evidence of discrimination could be found. No action could be taken.
294873	4/27/16	Discrimination	Attitude (operator)	Video was reviewed and no evidence of discrimination could be found. No action could be taken.

For Routes Operated by the city of Phoenix November 2015 to June 2018 (continued)

Complaint #	Incident Date	Subcategory	Complaint	Action Taken
296203	5/11/16	Discrimination	Policy (operator)	Video was reviewed and no evidence of discrimination could be found. No action to be taken.
296348	5/12/16	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
296333	5/12/16	Discrimination	Attitude (operator)	Issued addressed with operator per company policy.
297004	5/20/16	Discrimination	Fare Policy	Video was reviewed for possible violation; no conclusive evidence of discrimination found. Operator followed fare policy. No action to be taken.
297265	5/23/16	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. ADA Ramp deployed manually, work order established, vehicle left out of service. Operator to be monitored.
298791	6/10/16	Discrimination	Attitude (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
299440	6/18/16	Discrimination	Fare Policy	Video was reviewed, no evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
300585	7/1/16	Discrimination	Fare Policy	Video was reviewed, no evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
300671	7/2/16	Discrimination	Attitude (operator)	No evidence of discrimination could be determined based on investigation. Operator states he asks all customers to dispose of drinks in non-approved containers. No action was taken.
300754	7/4/16	Discrimination	Policy (operator)	Video was reviewed and no evidence of discrimination could be found. No action could be taken.

For Routes Operated by the city of Phoenix November 2015 to June 2018 (continued)

Complaint #	Incident Date	Subcategory	Complaint	Action Taken
301451	7/13/16	Discrimination	Forced off/Security	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
302151	7/21/16	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
302510	7/25/16	Discrimination	Fare Policy	Video was reviewed, no evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
303835	8/8/16	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
304786	8/18/16	Discrimination	Pass Up	Video was reviewed for possible violations; with no conclusive evidence of discrimination found. No customers were on the bus or at the stop at the time given by customer. No action could be taken.
305128	8/22/16	Discrimination	Attitude (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
305526	8/25/16	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
305594	8/26/16	Discrimination	Policy (operator)	Operator to be monitored.
305736	8/28/16	Discrimination	Attitude (operator)	Operator to be monitored.
305883	8/30/16	Discrimination	Policy (operator)	Complaint forwarded to supervisor to be addressed with operator per company policy.
306252	9/2/16	Discrimination	Fare Policy	Video was reviewed, no evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.

For Routes Operated by the city of Phoenix November 2015 to June 2018 (continued)

Complaint #	Incident Date	Subcategory	Complaint	Action Taken
306105	9/7/16	Discrimination	Fare Policy	Issued addressed with operator per company policy. Operator to be coached and counseled.
306590	9/7/16	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
306694	9/8/16	Discrimination	Forced off/Security	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
306940	9/11/16	Discrimination	Forced off/Security	Video was reviewed and no evidence of discrimination could be found. No action to be taken.
307059	9/12/16	Discrimination	Policy (operator)	Video was reviewed and no evidence of discrimination could be found. Customer was not at the stop or prepared to board. No action could be taken.
307900	9/20/16	Discrimination	Fare Policy	Complaint forwarded to supervisor to be addressed with operator per company policy.
308053	9/22/16	Discrimination	Forced off/Security	Video was reviewed, no evidence of discrimination could be determined based on investigation. Issued addressed with operator per company policy.
308285	9/26/16	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
308838	10/2/16	Discrimination	Fare Policy	Operator to be monitored.
313364	11/17/16	Discrimination	Fare Policy	Per information provided by customer and investigation conducted, correct operator could not be identified. No action could be taken.
315259	12/9/16	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
315607	12/13/16	Discrimination	Fare Policy	Operator to be monitored.
316273	12/21/16	Discrimination	Policy (operator)	Operator to be monitored, coached and counseled.

For Routes Operated by the city of Phoenix November 2015 to June 2018 (continued)

Complaint #	Incident Date	Subcategory	Complaint	Action Taken
316341	12/22/16	Discrimination	Attitude (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
316720	12/28/16	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
318838	1/24/17	Discrimination	Policy (operator)	Complaint forwarded to supervisor to be addressed with operator per company policy.
320650	2/10/17	Discrimination	Fare Policy	No conclusive evidence found to indicate a policy violation had occurred.
321189	2/16/17	Discrimination	Pass Up	No evidence of discrimination could be determined based on investigation. No action to be taken.
321286	2/17/17	Discrimination	Attitude (operator)	Per information provided by customer and investigation conducted, no evidence of discrimination could be determined based on investigation. Operator to be monitored.
321674	2/22/17	Discrimination	Pass Up	Per information provided by customer and investigation conducted, no evidence of discrimination could be determined based on investigation.
322665	3/3/17	Discrimination	Attitude (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found. No action to be taken.
325770	4/6/17	Discrimination	Attitude (operator)	No conclusive evidence found to indicate a policy violation had occurred.
326301	4/12/17	Discrimination	Fare Policy	Video was reviewed for possible violation; no conclusive evidence of discrimination found. Fare box was not operational at the time. No action to be taken.
326701	4/17/17	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found. False Report.

For Routes Operated by the city of Phoenix November 2015 to June 2018 (continued)

Complaint #	Incident Date	Subcategory	Complaint	Action Taken
327662	4/27/17	Discrimination	Pass Up	No conclusive evidence found to indicate a policy violation had occurred.
329535	5/17/17	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
329641	5/18/17	Discrimination	Fare Policy	No conclusive evidence found to indicate a policy violation had occurred. The investigation is unsubstantiated due to insufficient information.
329742	5/19/17	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
330535	5/30/17	Discrimination	Policy (operator)	Complaint forwarded to supervisor to be addressed with operator per company policy.
331888	6/13/17	Discrimination	Policy (operator)	Complaint forwarded to supervisor to be addressed with operator per company policy.
332286	6/19/17	Discrimination	Policy (operator)	Complaint forwarded to supervisor to be addressed with operator per company policy.
334220	7/7/17	Discrimination	Policy (operator)	No conclusive evidence found to indicate a policy violation had occurred.
334615	7/11/17	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
334499	7/11/17	Discrimination	Pass Up	No conclusive evidence found to indicate a policy violation had occurred. The investigation is unsubstantiated due to insufficient information.
334906	7/14/17	Discrimination	Attitude (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
338451	8/17/17	Discrimination	Fare Policy	Operator to be monitored, coached and counseled.
341281	9/17/17	Discrimination	Fare Policy	No conclusive evidence found to indicate a policy violation had occurred.
341570	9/18/17	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found.

For Routes Operated by the city of Phoenix November 2015 to June 2018 (continued)

Complaint #	Incident Date	Subcategory	Complaint	Action Taken
343506	10/5/17	Discrimination	Attitude (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
344322	10/13/17	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
344911	10/19/17	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
348450	11/18/17	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
352546	1/4/18	Discrimination	Policy (operator)	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
353931	1/18/18	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found.
359293	3/9/18	Discrimination	Attitude (operator)	Operator to be monitor.
359935	3/16/18	Discrimination	Pass Up	Complaint forwarded to supervisor to be addressed with operator per company policy. Operator to be disciplined.
364867	5/4/18	Discrimination	Fare Policy	Video was reviewed, no evidence of discrimination could be determined based on investigation. Operator followed fare policy. No action to be taken.
365868	5/14/18	Discrimination	Pass Up	Video was reviewed for possible violation; no conclusive evidence of discrimination found.

2.6 Public Participation Plan

Overview

Under 49 USC Chapter 53, Section 5307, The Federal Transit Administration (FTA) requires "a locally developed process to consider public comment before raising a fare or carrying out major reduction in transportation service". The public is provided the opportunity for input and review through the public engagement process. Public transit services provided by the city of Phoenix and the Regional Public Transit Authority (RPTA) operates under the brand name "Valley Metro". As a result, much of Phoenix's public participation, engagement, and feedback process are carried out in partnership with Valley Metro. Actions such as the establishment of new service, fare adjustments, major modifications of existing service, and or suspension or abandonment of any bus routes include a formal process of review by the city of Phoenix and meaningful public engagement conducted by city of Phoenix and Valley Metro staff.

In proposing service or fare changes in the region, the city of Phoenix and Valley Metro use a broad range of communication tools to solicit feedback from the community and targeted populations. The following list is not intended to be a complete list of communication tools which may be used, but a sample of some strategies that the city of Phoenix may use for a variety of purposes.

Table 3: Public Outreach Tools

Outreach Tool	Definition
Public Hearing	A meeting during which a presentation is made on the proposal and public testimony are heard and recorded.
Legal Notice	Public posting or advertising in newspapers to announce a legal action or intent.
Display Ads in Newspaper	Paid advertisement in the newspaper to alert readers about an upcoming event or action.
Website/Online Social Media	Information on the proposed changes are posted on both city of Phoenix and Valley Metro websites and social media to notify affected customers.
Mobile Device Alerts	Messages alerting customers to important information on the proposed changes.
Signs	Signs on buses, at stop locations, and at transit centers can help to reach people who use transit services.
Rider Alerts	Notification of route, frequency, or other information that is of particular interest to riders.
Direct Mailings	Mail sent to an affected group or area to educate, notify, or request input.
Workshops/Open Houses	Types of meetings where staff and public interact and discuss various issues.
Surveys	Surveying opinions and ideas can help public agencies understand how to better serve the constituency.
On-board Information	Pamphlets and posters inside the bus that alert riders to information or meeting dates.
Displays at Transit Centers	Permanent or temporary displays at transit centers are able to reach a large number of riders.
Webinar	An online interactive session of which a presentation is made and participants can ask the host questions on the proposed changes.

Typical Public Participation Process for city of Phoenix Operated Service Changes

City of Phoenix and member cities of Valley Metro conduct changes to public transit service every six months. The public participation and outreach process begins six months before the effective service change date. The following list illustrates a typical public participation process:

1. List of proposed changes are finalized between city of Phoenix and Valley Metro staff. Maps and description of the proposed changes are prepared for public notice production and to be posted on the website six months before the service change date.
2. A presentation is made to the city of Phoenix Citizens Transportation Commission to notify commission members of the proposed changes.
3. Notice of public hearing date and place are posted on newspaper, website, and social media 30 days before the public hearing date. The second notice will be made at least 10 days prior to the scheduled hearing date. Public materials will be produced in English and Spanish (the region's two primary languages), or in other languages upon request, in order to ensure Limited English Proficient (LEP) populations within the transit service area are informed of the proposed changes.
4. Targeted outreach (which includes in person contact or posters) and conducted to notify customers of the proposed changes.
5. Announcements are made inside public transit vehicles to notify passengers the proposed changes.
6. Webinar is conducted about one week before the public hearing date to present the changes and answer any questions.
7. Public hearing is held in coordination between city of Phoenix and Valley Metro at Valley Metro building. Presentation are made and public testimony are heard and recorded.
8. Results of the public outreach process is presented to the city of Phoenix Citizens Transportation Commission and request the commission to recommend approval of the proposed changes. Public may provide comments during the meeting.
9. Presentation is made to the city of Phoenix Transportation and Infrastructure Subcommittee to request approval of the proposed changes. Public may provide comments during the subcommittee meeting.

Public Outreach Techniques for Title VI Populations

These outreach strategies are based on techniques utilized as a collaborated effort with Valley Metro as indicated in ***Attachment A: Valley Metro's Public Participation Plan***. The city of Phoenix partners with Valley Metro when conducting joint-planning studies on regional transportation planning efforts. The public participation strategies listed below are used by the city of Phoenix as part of the public outreach process for these plans and studies. The techniques below pertain to Title VI populations (minority, LEP, low-income).

Techniques to Involve Low Income Communities and Minority Communities

- Focus Groups
- Include information with meeting notices on how to request translation assistance
- Extensive use of visualization techniques, including maps and graphics
- Conduct an ongoing dialogue with groups representing potentially underserved populations such as the elderly, youth, and non-native English speakers
- Notify agencies that work with minorities and low-income populations of agency activities
- When multiple meetings are held for a single

subject, efforts are made to use a diversity of meeting locations in an effort to reach all segments of affected populations
- Press releases are distributed to local media outlets to inform the public of meetings, open houses, and other city of Phoenix activities

Techniques to Involve Limited English Proficient Population:

- Translate outreach materials and have translators available at meetings as requested
- Include information on website and meeting notices on how to request translation or other assistance
- Use visualization techniques such as maps and graphics to illustrate trends, proposed projects, etc.

Section 2.7 Language Assistance Plan

Federal agencies have published guidance for their respective recipients in order to assist them with their obligations to limited English proficiency (LEP) persons under Title VI. This order applies to all state and local agencies that receive federal dollars. The explanation of the required Language Assistance Plan outlined below is based on federal guidance provided in Federal Transit Administration (FTA) Circular 4702.1B.

Language Assistance Needs Assessment – Four Factor Analysis

The following outlines how to identify a person who may require language assistance, the ways in which the city of Phoenix Public Transit Department and the regional transit authority, Valley Metro, provides such assistance, any staff training that may be required to provide such services, and the resources available to reach out to the people who may need language assistance service. In order to prepare the Language Assistance Plan (LAP), a needs assessment is conducted utilizing the four factor analysis.

The four factors are:
Factor 1: The number or proportion of LEP persons eligible to be served or likely to be encountered by city of Phoenix Public Transit and Valley Metro services and programs.
Factor 2: The frequency with which LEP persons come into contact with city of Phoenix Public Transit and Valley Metro services and programs.
Factor 3: The nature and importance of Valley Metro and city of Phoenix Public Transit services and programs in people's lives.
Factor 4: The resources available to Valley Metro and the city of Phoenix Public Transit Department for LEP outreach, as well as the costs associated with the outreach.

The following is an explanation of what is to be included in the four factor LEP population needs assessment. In addition to the following explanation, Valley Metro has conducted a thorough LEP four factor analysis and resulting Language Access Plan to be utilized by all Valley Metro member agencies.
Please refer to ***Attachment B: Valley Metro Language Assistance Plan.***

Factor 1: The number or proportion of LEP persons eligible to be served or likely to be encountered by Valley Metro and city of Phoenix Public Transit Department services and programs.

An effective Language Assistance Plan is the preferred way of determining the extent to which the transportation needs of the LEP population mirror those of the community at large and the extent to which LEP persons have different needs that should be addressed through the transit service planning and facilities project development process.

Demographic Profiles for Communities of Concern

Communities of concern describe populations that have been determined by the federal government as benefiting from protections to ensure their meaningful involvement in planning and services.

These vulnerable populations have been identified through the Civil Rights Act of 1964, Executive Order 12898, and Executive Order 13166 to end discrimination and ensure equal access to all federally funded services.

To assist with the identification of Title VI neighborhoods, the presence of Title VI populations is compared against the Maricopa County average for each community of concern. Linguistic isolation follows federal guidance at five percent within a census block of 1,000 people or more within a neighborhood. Based on the 2008 to 2012 American Community Survey five-year estimates, the threshold for each mandated community of concern is as follows:

Communities of concern are identified as those census tracts where the identified group represents a percentage of the population equal to or greater than that of the Maricopa County average. Federal guidelines state that minority populations should be identified where either (a) the minority population of the affected area exceeds 50 percent, or (b) the minority population percentage of the affected area is measurably greater than the minority population percentage in the general population or other appropriate unit of geographic analysis—in this case, Maricopa County

Limited English Proficient (LEP) households: A person with limited English proficiency is described as a person who does not speak English as a primary language and has a limited ability to read, write, speak and understand English. An area is identified as LEP when five percent or more of the population, or 1,000 people within a neighborhood, fit this definition. The Census Bureau further defines households as linguistically isolated when there are no members aged 14 years and over who speak only English or who speak a non-English language and speak English "very well." In other words, all members of the household ages 14 years and over have at least some difficulty with English.

Factor 2: The frequency with which LEP persons come into contact with the city of Phoenix Public Transit Department and Valley Metro services and programs.

The Valley Metro Planning and Community Relations Divisions have conducted a thorough analysis of the frequency with which LEP persons come into contact with the Valley Metro system through a combination of surveys to community groups serving this population, as well as demographic mapping of service crossing census tracts with greater than average concentration of minority, low income and LEP populations. Please refer to the in-depth LEP analysis conducted by Valley Metro in ***Attachment B: Valley Metro Limited English Proficiency Four Factor Analysis and Language Access Plan.***

Factor 3: The nature and importance of the city of Phoenix Public Transit Department services and programs in people's lives.

An analysis of benefits and burdens is a critical component of the city of Phoenix Public Transit Department's Title VI Program. The Valley Metro Community Relations Department, in partnership with the city of Phoenix Public Transit Department, analyzes the feedback reported by communities of concern to determine the potential benefits and burdens of a transportation service or fare change on the population. In addition, proposed transportation improvements, such as those in the city of Phoenix Public Transit Department System Plan, are analyzed and documented to determine if the improvements impose a disproportionate burden

on the communities of concern. This analysis, as well as the input from communities of concern, is incorporated as proposed service and fare changes advance through the Valley Metro and city of Phoenix committee, board and council processes for approval. Feedback from Title VI populations will be used to assess any enhancements to the Title VI Plan on a biennial basis.

Factor 4: The resources available to the city of Phoenix Public Transit Department for LEP outreach, as well as the costs associated with the outreach.

Valley Metro conducts public outreach activities on behalf of its members for regional transit service changes. The resources that Valley Metro uses to conduct LEP outreach are highlighted in ***Attachment B: Valley Metro Limited English Proficiency Four Factor Analysis and Language Access Plan***.

The city of Phoenix Public Transit Department conducts additional outreach for department-specific transit activities, to include its 35 year comprehensive transit plan.

Resources to translate materials and interpret for individuals are available but finite. The investment is made to translate vital materials, and the city of Phoenix Public Transit Department maintains a standing offer to translate other materials into additional languages and provide alternative formats such as Braille or large print. The city of Phoenix Public Transit Department utilizes the city of Phoenix Library Brailling equipment to aid in the provision of these services and frequently enlists internal resources and staff who are bilingual and available to assist with language interpretation. At a minimum, there is a bilingual staff member who can assist with interpretation at public meetings as needed.

Additional materials and interpreters will be made available for areas with high concentrations of linguistically-isolated individuals. The city of Phoenix Public Transit Department public involvement staff has been trained to utilize bilingual staff when needing translation assistance. If fluency in the needed language is not found among the city of Phoenix Public Transit Department staff, assistance may be acquired through contracted services. Currently, the Spanish population has a significant presence in the service area; therefore, a number of materials are created and translated in a format that is easily understood by this Spanish speaking population. The city of Phoenix Public Transit Department also offers language translation services for public meetings at no cost to the public, if the request is made 48 hours prior to the time of the scheduled meetings.

Collateral materials are created and translated for outreach and marketing purposes to include:

- Printed materials
- News releases to local television, radio and print media
- Public notices, service explanations
- Spanish interpreters at public meetings
- Social media strategies and online technologies to reach affected population

Analysis of Benefits and Burdens - Implementation of the Language Assistance Plan

Information gained from Valley Metro's detailed analysis of affected communities will be considered when conducting planning activities.

Based on the data, staff will determine the presence of Title VI and affected communities as well as the potential to impact them through the planned activity or project. Appropriate outreach and analysis will be incorporated into all relevant activities from the beginning. The Title VI Coordinator may assist staff as needed in determining the potential impact of projects and planning activities on Title VI populations. The Coordinator will also provide training opportunities to ensure staff develops an understanding of Title VI issues and responsibilities.

Section 2: General Reporting Requirements

The city of Phoenix Public Transit Department must analyze any major decision made regarding the City's transit system, particularly if there is any potential to negatively affect areas of high concentration of LEP population. Some of the on-going LAP implementation strategies include:

- Identifying the LEP individuals who need language assistance
- Implementing city of Phoenix and Valley Metro language assistance measures
- Providing staff training
- Ongoing implementation of public involvement program and activities
- Monitoring and updating the LAP

Identifying the LEP Individuals Who Need Language Assistance:

The city of Phoenix Public Transit Department will continue to monitor the language needs of the LEP individuals within its service area and will continue to do the following:

- Continue to monitor the languages and the customers' needs encountered by the front-line staff.
- Continue to monitor the American Community Survey One-Year Estimate published each year by the U.S. Census Bureau for changes in the LEP population.
- Closely monitor the Census data and ensure that the LAP is updated in a timely manner.

Language Assistance Measures:

The city of Phoenix Public Transit Department will continue to implement the current measures to assist the LEP population and will continue to enhance its services to strengthen the LAP to include:

- Continue to provide for interpreters as needed, in Spanish and any other language requested in accordance with Title VI guidelines.
- Maintain regular communication with front line public involvement staff regarding their experience with the LEP clients in order to assess the assistance provided.
- Continue to translate important notices and major transportation planning studies or changes in policies that may directly or indirectly impact the LEP population.
- Continue to work with local social services agencies to disseminate information to the LEP population and to collect information regarding the unmet needs.

Staff Training:

The city of Phoenix Public Transit Title VI Coordinator will ensure that staff is provided appropriate training in order to provide high level of customer service to the general population as well as the LEP population.

All involved staff will be regularly trained for handling potential Title VI and LEP complaints.

Staff with bilingual capabilities will be given special training related to language assistance and how to handle potential Title VI and LEP complaints.

The Public Transit Department Title VI Coordinator will continue to survey staff for their language skills.

Public Involvement:

The city of Phoenix Public Transit Department will continue to participate in Valley Metro's inclusive public outreach process as detailed in the Valley Metro's Title VI Public Participation Plan ***(Attachment A: Public Participation Plan)***.

The Department's Title VI Coordinator will also continue to monitor the effectiveness of the current process by participating in a sampling of Valley Metro and city of Phoenix Public Transit-sponsored public outreach events.

The city of Phoenix Public Transit Department Title VI Coordinator will also work with Valley Metro to update the Public Participation Plan as needed.

In collaboration with Valley Metro, The city of Phoenix Public Transit Department's Title VI Coor-

dinator will continue to explore new and innovative techniques and strategies to engage the public in transportation projects and planning.

Monitoring and Updating the LAP:

The city of Phoenix Public Transit Department will work with Valley Metro to continue to update the LAP as required by the USDOT and as the characteristics of the population changes. Updates will be made as necessary and may include, but not be limited to:

- Changes in LEP population by number or area as new information is made available.
- Updated analysis of the current LEP service area.
- Requirements for additional language translation services.

Notice to LEP Persons:

Any person requesting language assistance should contact the city of Phoenix Public Transit Department. All correspondence should be addressed to:

ATTN: Title VI /ADA Coordinator

City of Phoenix Public Transit Department
302 N. First Ave., Ste. 900
Phoenix, AZ 85003
(602) 262-7242 (phone)
(602) 495-2002 (fax)
pubtrans@phoenix.gov
www.phoenix.gov/publictransit

2.8 Membership of Non-Elected Committees and Councils

Title VI issues are communicated and considered as project and service planning activities move through the city of Phoenix Public Transit Department and Valley Metro board approval process. This generally originates at the planning staff technical level, proceeds through Division and Management level review and recommendation, and is then submitted to the Valley Metro Service Planning Working Group made up of all Valley Metro member cities. After the service changes are refined through the working group, they are presented to the public for input and revision. The Service Planning Working Group meets to discuss public input and to make final changes, then city of Phoenix staff submit the final service change recommendations to the Phoenix City Council for final approval or disapproval. In this way, the concerns and community input that have been addressed throughout the planning of the activity and project development impact decisions in a meaningful way.

Within the Title VI Circular (FTA 4702.1B), FTA requires that the city of Phoenix include a table depicting the racial distribution of the members of all its non-elected committees and councils.

Advisory Committees: These groups may include departmental representatives, liaisons from MAG, jurisdictional agencies (cities/towns) and other stakeholders as appropriate to the specific project or planning effort.

General Public: This group includes residents throughout the city of Phoenix. This target group is included through Public Open Houses, social media, and other methods identified by both the city of Phoenix Public Transit Department Public Information Office and Valley Metro Community Relations Department.

Boards and Commissions— Citizen's Transportation Commission (CTC):
The Citizen's Transit Commission (CTC) consists of fifteen (15) members. Each member shall be a resi-

Table 4: Non-Elected Transit Related Committees by Race

Body	Caucasian	Latino	African American	Asian American	Native American	Non-Disclosed
Citizen's Transportation Commission	7	3	1	0	0	4
Percentage	47%	20%	6%	0	0	27%

dent of the city of Phoenix. Commission members shall be appointed from the following: (a) One (1) from each council district; (b) One (1) from the business community; (c) One (1) from the tourism and hospitality industry; (d) One (1) from the community of persons with disabilities; and, (e) Four (4) from the city at large.

To ensure accountability, the CTC as required by the Transportation 2050 Plan, assures public input and government accountability on all transit and city traffic improvements that are made with funding provided pursuant to the measure.

Another important function of the CTC is to assist in developing and maintaining public understanding and support of the city of Phoenix Public Transit Department programs through active communication. CTC members bring the constituent voice to the city of Phoenix Public Transit Department transportation decisions, and CTC actions go to the Transportation and Infrastructure Subcommittee of the Phoenix City Council. The board meets every

month, and city of Phoenix residents are encouraged to attend.

Transportation and Infrastructure Subcommittee:

The Transportation and Infrastructure subcommittee provides policy guidance on issues related to: streets; transportation planning; public transit, light rail, walkability and bikeability, infrastructure planning; water; wastewater; and solid waste. Subcommittee membership is comprised of city elected officials who are selected by the Mayor in January to serve on the various subcommittees for the calendar year.

The city of Phoenix Mayor and city Council: The City is administered by a city Manager who reports to the Mayor and eight city council members elected by the public. The Mayor and city Council receives final

drafts of key policies, procedures, plans and programs for adoption.

2.9 Determination of Site or Location of Facilities

Since the last Title VI Program submission in 2015, The city of Phoenix Public Transit Department built one facility, the Desert Sky Transit Center, meeting the applicable definitions under Title VI, and thereby conducted an analysis. Please refer to ***Attachment C: Desert Sky Facility Site Equity Analysis.***

> In determining the site or location of facilities, the City will not make selections with the purpose or effect of excluding persons from, or denying benefits of, or subjecting them to discrimination with regard to race, color or national origin following the guidance provided in the Circular 4702.1B, Chapter III, Section 13 – Determination of Site or Location of Facilities.

The Desert Sky Transit Center is located at the southeast corner of Thomas Road and 79th Avenue in west Phoenix. The purpose of constructing a new Desert Sky Transit Center was in result of the current Desert Sky Mall property owner(s) would not renew the lease thus the City purchased adjacent property to support the City's efforts in revitalizing the community in west Phoenix. The project received a Categorical Exclusion under 23 CFR 771.117(d)(10). Please refer to ***Attachment D: Desert Sky NEPA approval***.

- For facilities covered by this provision, The city of Phoenix is required to:

- Complete a Title VI equity analysis during the planning stage with regard to where a project is located or sited to ensure the location is selected without regard to race, color, or national origin. Recipients shall engage in outreach to persons potentially impacted by the siting of facilities. The Title VI equity analysis must compare the equity impacts of various siting alternatives, and the analysis must occur before the selection of the preferred site.
- When evaluating locations of facilities, recipients should give attention to other facilities with similar impacts in the area to determine if any cumulative adverse impacts might result. Analysis should be done at the Census tract or block group where appropriate to ensure that proper perspective is given to localized impacts.
- If the recipient determines that the location of the project will result in a disparate impact on the basis of race, color, or national origin, the recipient may only locate the project in that location if there is a substantial legitimate justification for locating the project there, and where there are no alternative locations that would have less disparate impact on the basis of race, color, or national origin. In order to show that both tests have been met, The city of Phoenix must consider and analyze reasonable, feasible, and prudent alternatives to determine whether those alternatives would have less of a disparate impact on the basis of race, color, or national origin, and then implement the least discriminatory alternative.

2.10 Phoenix City Council – Public Transit 2018 Title VI Program Update

The Phoenix City Council received their September 2018 agenda, which included item 93, titled: Approval of Federal Transit Administration Required 2018 Title VI Program Update. During the meeting the Council discussed and moved to approve the item. Please refer to Attachment J

3.1 Program Overview

Guidance for Recipients of Federal Funding

Title VI of the Civil Rights Act of 1964 is the overarching civil rights law that prohibits discrimination based on race, color, or national origin, in any program, service or activity that receives federal assistance. Specifically, Title VI assures that "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefit of, or be otherwise subjected to discrimination under any program or activity receiving federal assistance."

As the primary recipient of funding from the Federal Transit Administration (FTA), the city of Phoenix Public Transit Department follows the guidance of FTA Circular 4702.1B, which provides the instructions necessary to carry out the USDOT Title VI regulations, and to integrate into our programs and activities considerations expressed in the Department's Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Persons (70 FR 74087, December 14, 2005).

To provide subrecipients of federal funds assistance and information to ensure continued compliance with all grant requirements, the city of Phoenix conducts three levels of subrecipient monitoring: project oversight, assessments and ongoing assistance.

Project Oversight

The city of Phoenix's subrecipient monitoring procedures outlines programmatic and fiscal responsibilities of various roles to ensure subrecipients are complying with federal requirements and are using federal funds appropriately. Oversight begins after grant applications are awarded by the federal agency and a specific ledger is tracked by the grants administrators.

Assessment

Program staff performs audit assessments of subrecipients by conducting annual compliance reviews, which includes reviewing external annual audits, monthly/quarterly performance reports and Title VI plans and other documents. If results of the assessment identify known or potential concerns, the Phoenix Public Transit Department may conduct additional procedures such as testing payments, site audits to gain an understanding of internal controls and ensuring federal requirements are met such as procurement, equipment purchases and suspension and debarment when applicable.

Ongoing Assistance

The Title VI Coordinator and/or Grant Administrator provide ongoing assistance to subrecipients through communications, trainings (when requested), and access to subject matter experts within the city of Phoenix for information and data.

3.2 Steps to Providing Assistance

The oversight team is ultimately responsible for the achievement of subrecipient outcomes, and is involved in every step of the process by ensuring appropriate agreements are in place, agreements contain the required federal, state and local language and verifying that performance measures and all compliance requirements are met throughout the grant period.

Program staff will provide ongoing assistance to subrecipients through communications, training (when

requested), and access to subject matter experts within the city of Phoenix for information and data. Specifically, the city of Phoenix has provided the following to subrecipients:

- Sample notices to the public informing beneficiaries of their rights under DOT's Title VI regulations, procedures on how to file a Title VI compliant, and the recipient's Title VI complaint forms;
- Sample procedures for tracking and investigating Title VI complaints filed with a subrecipient, and when the primary recipient expects the subrecipient to notify the primary recipient of complaints received by the subrecipient; and
- Demographic data to update their Title VI public participation and language assistance plans.

3.3 Steps to Ensure Title VI Subrecipients Monitoring

The Title VI review process focuses on, but is not limited to and shall at a minimum include the following information:

The items listed below are based on requirements from 4702.1B. Please refer to *Attachment E: Compliance Monitoring Checklist.*

Title VI Program Content Requirements for all Subrecipients

- A signed Title VI assurance and governing body approval of the overall Title VI Program
- A copy of the agency's public notice with a list of where the notice is posted
- Instructions for how to file a complaint with a copy of the complaint form
- A list of any Title VI investigations, complaints or lawsuits and how such complaints were addressed and resolved by the city of Phoenix Public Transit Department
- A Public Participation Plan and list of outreach activities conducted since the last submission
- A Language Assistance Plan for providing language assistance
- A table depicting the racial composition of transportation-related committees, boards, and advisory councils

If constructing a facility, the Title VI Program must include:

- Title VI Facility Location Equity Analysis

If providing fixed route service, the Title VI Program must also include:

- Fixed Route Service Standards
- Fixed Route Service Policies

City of Phoenix responsibilities

As the designated recipient of FTA funds, the city of Phoenix receives, administers and allocates funds to subrecipients and is responsible for documenting compliance with Title VI. The city of Phoenix's responsibilities includes monitoring subrecipient compliance with Title VI, collecting and reviewing Title VI documents, including subrecipient Title VI data to FTA and providing assistance and support to subrecipients.

To Track Title VI compliance, the city of phoenix will: ***(Please refer to attachment E.1 (on page 33) Subrecipient Monitoring Compliance Review)***

- Document subrecipient compliance with the general requirements
- Collect and maintain subrecipient Title VI program documents on a designated schedule
- Perform desk and onsite compliance reviews on selected subrecipients
- Forward subrecipient Title VI information as requested by the FTA

Annual Title VI report

Each year subrecipients must submit the following the city of Phoenix by December 1 of each year.

- A list of transit-related Title VI complaints, investigations and lawsuits
- Public Participation Plan
- Title VI facility location equity analysis (if constructing a facility)

Nonprofits

Subrecipients that provide demand response services, that receive 5310 funds solely to serve their own clientele (i.e. closed door service) are only required to submit a Title VI Program and annual Title VI Report by October 15 of each year.

The table below reflects subrecipients awarded FTA section 5307, 5309, 5316, 5317, 5337, 5339 & 5310 funds

Attachment E.1 - Subrecipient Monitoring Compliance Review

Title VI

All Sections 5307, Section 5309, Section 5337, Section 5339, Section 5310, Section 5316, and Section 5317 grantees must ensure that no person in the Unitied States, on the grounds of race, color, national origin be excluded from participating in, denied the benefit of, or be subject to discrimination under any project, program or activity funded in whole or in part through these section grants. Subrecipients that receive federal funds are required to comply with Title VI laws and regulations, including FTA Circular 4702.1B which requires subrecipients to submit the following information:

Requirement	Results
1. Determine if the subrecipient has a Title VI plan and Verify the following elements or FTA approval:	
A. Title VI Assurance	
B. Public Notice	
C. Customer compliant Form	
English	
Spanish	
D. List of all transit related Title VI compliants	
Compliants	
Investigations	
Lawsuits	
E. Public Participation Plan	
F. Language Assistance Plan	
G. Transit related committee membership table	
H. Board Approval	
If applicable,	
I. Title VI Equity Analysis	
J. Service Standards for fixed route	
K. Service Policies for fixed route	

3.4 Table 3 - List of city of Phoenix Subrecipients

Subrecipient	Agency Type
Avondale	Public
Buckeye	Public
Chandler	Public
El Mirage	Public
Glendale	Public
Gilbert	Public
Goodyear	Public
Mesa	Public
Peoria	Public
Scottsdale	Public
Surprise	Public
Tempe	Public
Tolleson	Public
Valley Metro	Public
Arizona Recreation Center for the Handicapped	Nonprofit
Arizona United Spinal Cord Injury Association	Nonprofit
Beatitudes	Nonprofit
Benevilla	Nonprofit
Central AZ Council on Development Disabilities	Nonprofit
Chandler Gilbert ARC	Nonprofit
Cheers	Nonprofit
Civitan	Nonprofit
Developmental Enrichment Centers	Nonprofit
East Valley Adult Resources	Nonprofit
Foothills Caring Corps	Nonprofit
Friendship Village	Nonprofit
Goldensun Peace Ministries	Nonprofit
Gompers	Nonprofit
Hacienda Healthcare	Nonprofit
Horizon Health and Wellness	Nonprofit
Independence Plus	Nonprofit
Lifewell Behavioral Wellness	Nonprofit
Lura Turner Homes	Nonprofit
Marc Community Resources	Nonprofit
Native American Connections	Nonprofit
NAU	Nonprofit
Northwest Valley Connect	Nonprofit
One Step Beyond	Nonprofit

3.4 Table 3 - List of city of Phoenix Subrecipients (cont.)

Subrecipient	Agency Type
Scottsdale Training and Rehabilitation Services	Nonprofit
Southern AZ Association for Visually Impaired	Nonprofit
Stand Together and Recover	Nonprofit
The Centers for Habilitation	Nonprofit
Terros	Nonprofit
United Cerebral Palsy Association of Central Arizona, Inc.	Nonprofit
UMOM	Nonprofit
Valley Life	Nonprofit
Valley Center for the Deaf dba Catholic Community Services of Southern AZ	Nonprofit
AMC Technologies	Nonprofit
Tanner Community Development Corporation	Nonprofit
Ability 360	Nonprofit
ACCEL	Nonprofit
Ahwatukee Foothills Family YMCA	Nonprofit
Arizona Foundation for the Handicapped	Nonprofit
Hope Lives – Vive La Esperanza	Nonprofit
Nobody's Perfect	Nonprofit
Tempe Neighbors Helping Neighbors	Nonprofit
Treasure House	Nonprofit

Public Organizations:

Non-profit Organizations:

Ability 360	ACCEL	Ahwatukee Foothills Family YMCA	AMC Technologies
Arizona Recreation Center for the Handicapped	Arizona United Spinal Cord Injury Association	Beatitudes	Benevilla
Central AZ Council on Development Disabilities	Chandler Gilbert ARC	Cheeers	Civitan
Developmental Enrichment Centers	East Valley Adult Resources	Foothills Caring Corps	Friendship Village
Goldensun Peace Ministries	Gompers	Hacienda Healthcare	Hope Lives – Vive La Esperanza
Horizon Health and Wellness	Independence Plus	Lifewell Behavioral Wellness	Lura Turner Homes
Marc Community Resources	Native American Connections	NAU	Nobody's Perfect
Northwest Valley Connect	One Step Beyond	Scottsdale Training and Rehabilitation Services	Southern AZ Association for Visually Impaired
Stand Together and Recover	Tanner Community Development Corporation	Tempe Neighbors Helping Neighbors	Terros
The Centers for Habilitation	Treasure House	UMOM	United Cerebral Palsy Association of Central Arizona, Inc.
Valley Center for the Deaf dba Catholic Community Services	Valley Life		

4.1 Overview

The city of Phoenix follows a multiple phase Transit Standards and Performance Measures (TSPM) guided by Valley Metro. These standards fall inline with federal and state requirements. The TSPM help manage our regionally funded transit services and investments to include bus stops, park-and-ride facilities and future light rail destinations. The following three phase approach is posted on Valley Metro's website[2].

Phase I

The first phase in the plan establishes service provision goals to guide the development of Valley Metro's TSPM. This phase established standardized transit service types, operating characterized for each service type and bus stop spacing standards.

Phase II

The second phase focuses on the development of transit service performance measures, transit service thresholds, application principles and implementation standards for new service.

Phase III

The third phase establishes standard and performance measures for regionally funded transit vehicles such as buses and light rail vehicles and transit facilities including bus stops and park-and-ride facilities.

Beyond these considerations, the city of Phoenix has also established standards and policies as set forward in FTA Circular 4702.1B covering:

Standards: **Vehicles Loads**

Service Frequency

On-time Performance

Service Availability

Policies **Vehicle Assignment**

Transit Amenities

Please refer to Attachment F: 2018 Monitoring Report

These standard and policies assist in guiding the development and delivery of service in support of the City's mission to provide valued transit service. They also provide benchmarks to ensure that service design and operations practices do not result in discrimination on the basis of race, color, or national origin. They establish a basis for monitoring and analysis of service delivery, availability, and the distribution of amenities and vehicles to determine whether or not any Disparate Impacts are evident.

4.2 Vehicle Assignment

Vehicle assignment refers to the process by which transit vehicles are placed into revenue service throughout the transit system. Vehicles will be assigned to the various depots such that the average age of the fleet serving each depot does not exceed 12 years or 500K miles. Low-floor buses are deployed on frequent service and other high-ridership routes, so these buses carry a higher share of ridership than their numerical proportion of the overall bus fleet. Low-floor buses are also equipped with air conditioning and an automated stop announcement system.

Bus assignments take into account the performance characteristics of service types, and vehicle assignments are matched to the demand (vehicle with more capacity are assigned to service types with higher ridership). Note that some service types have specific vehicle types. Other bus assignments also take into consideration branded service such as RAPID routes, which has specific sub fleet assignment to it.

[2] https://www.valleymetro.org/transit-standards-and-performance-measures

Service Policy Elements

- Vehicle age
- Vehicle assignment records (dispatch bus pullout sheets). The contractor dispatch staff assigns buses daily based on historical knowledge of the route.

Level of Service Assessment

- Calculate the average age of the entire bus fleet
- Calculate the average age of the buses assigned to serve minority and low-income routes and for non-minority and non-low income routes.
- Assessment compares minority to non-minority routes and low-income to non-low-income routes.

Findings

The city of Phoenix Public Transit Department finds no disparities in terms of performance standards that would indicate lesser service provision to minority riders or populations. Vehicles serving minority routes are newer than those serving non-minority routes. Please refer to Attachment F: 2018 Monitoring Report.

4.3: Amenity Placement Guidelines

Transit Amenities refer to fixed items of comfort and convenience available to the general riding public such as shelter placement, lighting at the bus stop, signage, benches and trash can placement. Generally, individual municipalities are responsible for the provision, monitoring and maintenance of shelters, bus stop signs, benches and other amenities. The following sections briefly summarize the City's policies or standards that govern the deployment of amenities on the City's transit system. Phoenix policy is to review and ensure amenities are placed within the City without regard to race, color, national origin, or income considerations.

The City of Phoenix residents passed a transportation initiative in August 2015. That initiative was a dedicated sales tax (0.7 of a cent on every dollar spent in Phoenix) for transportation. That include streets and transit. The initiative, called T2050, was effective in January 2016. Since that time, one of the T2050 goals is to achieve 100% shade coverage at each bus stop location within 10 years. That goal has an approximate cost of $21M (today's dollars). The City currently owns approximately 4,000+ bus stops with nearly 63% of those have shaded structures as part of the bus stop features. The City of Phoenix also has a program that incorporates advertising kiosks in the bus stop shelter design at certain locations based on third-party advertising vendor determinations of market. Those advertising revenues paid to the City go back into the transit program.

General Bus Stop Placement and Amenity Considerations

- Understand the physical requirements of buses
  - Adequate curb space for ADA and mobility device ramp operations
  - Adequate sidewalk clearance for pedestrian and bicycle traffic on sidewalk
- Bus stops located by ¼-mile spacing
  - Mid-block stops are located near local street intersections for ease of crossing the street safely
  - Major arterial intersection bus stops are located far-side of the intersection for traffic flow purposes
  - Bus bays (or bus pullouts) are located far-side of the intersection based on available right-of-way and the number of lanes of traffic
  - Bus stops are located in higher visibility areas at locations that minimize safety hazards at driveways, visibility for adjacent properties, and facilitate the transfer to

cross routes.

- Bus stop amenities historically have been prioritized by ridership. Higher ridership bus stops will have shade structures and other amenities. With the T2050 initiative, the City is working toward the goal of all bus stops with shade shelters in the next 10 years.
    - All bus stops and amenities must comply with the ADA compliance and accessibility requirements.
    - Signage – All bus stops shall feature signs mounted in a uniform manner to identify the area as a stop and provide readable and accurate information.
    - Benches – Ridership figures are used to determine seating requirements while the built environment often dictates seating options.
    - Trash Can Placement – Trash cans are only placed at sheltered bus stops with high ridership.
- Bus stop placement, amenities and upgrades must consider ADA compliance and accessibility requirements.
- ADA considerations are a major factor in the City's bus stop maintenance program in working through pre-1990 bus stops to upgrade those stops to be accessible and compliant with the ADA.
- Recent trends in the increasing homeless population has made bus stops a common location for homeless encampments and general use. The City has strived to create a comfortable environment for transit users while addressing the homeless use of the bus stop in a compassionate manner.
- Related to the provision of bus stop amenities is every increasing occurrence of vandalism. Gang tagging, trash, damage to amenities, and the destroying of lighting are common at our bus stops. The City has a dedicated cleaning, maintenance and repair program for all bus stops. A significant portion of that budget addresses the ongoing upkeep of the existing bus stops in order to maintain a certain level of security, comfort and cleanliness.

Bus Shelter Designs

City of Phoenix continues to use ridership as the primary criterion for determining shelter placement. Shelters should be provided at all stops which serve 50 or more boarding riders during the course of a typical weekday. A variety of bus shelter shapes and sizes are available to address site restrictions, opportunities, and ridership needs. The City recently embarked on two bus stop shelter design initiatives as part of the T2050 goal to have shade shelters at all bus stops:

- Upon passage of T2050, the City initiated a new bus stop shelter design to increase the size of the bus shelter to create more passenger room and to increase the shade. The new design has been incorporated in to the bus stop shelter manufacturing process and the new structures are currently on the street.
- As part of T2050, in order to create better shade in the hot environment of Phoenix, the City collaborated with Arizona State University, School of

Industrial Design, to develop a better bus stop shelter that created more opportunity for shade at all hours of the day while being an economically feasible product. The Industrial Design faculty and students assisted in the creation of a new concept that was approved by the City Council. That concept is currently being refined through the design process with prototypes being constructed prior to manufacturing at a larger scale. The goal for bus stop shade structures is to have multiple designs that can accommodate the many unique siting restrictions across the city. The flexible designs provide options for each unique location.

4.4 Regional System-Wide Service Standards and Policies

Overview

Valley Metro, as the regional transit authority, operates the majority of transit service in Maricopa County with the exception of the city of Phoenix, city of Glendale's local circulator and city of Scottsdale's downtown trolley. Valley Metro coordinated with the city of Phoenix to develop a Regional System-Wide Service Standards and Policies that applies to all services that both entities provide, but they can be also adopted by the cities of Glendale and Scottsdale. Valley Metro also operates the region's light rail transit system and has developed a separate set of System-Wide Standards and Policies for light rail. Valley Metro, in coordination with the city of Mesa, is currently constructing a light rail extension further into their community. In Tempe, Valley Metro is coordinating with the City to complete the design for a streetcar project and are currently relocating utilities. In addition, Valley Metro is coordinating with the city of Phoenix for the final design of three light rail extensions further into their community. All will adhere to the standards and policies outlined below.

Regional Service Policies for Bus Service

The regional service policies are meant to ensure that transit amenities are distributed fairly throughout the system and vehicles are properly assigned on a route-by-route basis.

1.0 VEHICLE ASSIGNMENT

1.1 Service Policy

Vehicle assignment refers to the process by which transit vehicles are placed into revenue service throughout the transit system. Vehicles will be assigned to the various depots such that the average age of the fleet serving each depot does not exceed 12 years. Low-floor buses are deployed on frequent service and other high-ridership routes, so these buses carry a higher share of ridership than their numerical proportion of the overall bus fleet. Low-floor buses are also equipped with air conditioning and an automated stop announcement system.

Bus assignments take into account the performance characteristics of service types, and vehicle assignments are matched to the demand (vehicle with more capacity are assigned to service types with higher ridership). Note that some service types have specific vehicle types. Other bus assignments also take into consideration branded service, such as Express/RAPID routes, that has specific sub fleet assignment to it.

1.2 Service Policy Elements

- Vehicle age

- Vehicle assignment records (dispatch bus pullout sheets). The contractor dispatch staff assigns buses daily based on historical knowledge of the route.

1.3 Level of Service Assessment

- Calculate the average age of the entire bus fleet.
- Calculate the average age of the buses assigned to serve minority and low-income routes and for non-minority and non-low-income routes.
- Assessment compares minority to non-minority routes and low income to non-low-income routes.

2.0 DISTRIBUTION OF TRANSIT AMENITIES

Transit amenities are locally funded and fall under the responsibility of the jurisdictions within which they are sited. The service standard elements and level of service assessments will be the responsibility of the individual municipalities. Valley Metro does, however, provide support in the planning processes of these facilities.

Regional Service Standards for Bus Service

The regional service standards are quantitative performance standards meant to ensure that fixed route services are fairly applied throughout Valley Metro's service area.

1.0 VEHICLE LOAD

1.1 Vehicle Load Standard

Vehicle load (also known as maximum load) is the ratio of the number of passengers on a vehicle to the number of seats. Valley Metro and the city of Phoenix operates a number of local fixed routes, express routes and circulator service in the region with a number of different bus configurations containing different numbers of seats and how many people can stand on the bus. The vehicle load threshold is, therefore, broken down to the three main types of service that are based on the average number of seats and the number of standing passengers. The load thresholds are identified below:

Local Fixed Route Service (as defined in Transit Standards and Performance Measures [TSPM] are Local Bus, Key Local Bus, Limited Stop All-Day)

Two bus types provide local fixed service in the region—a standard 40-foot bus and a 60-foot articulated bus.

A 40-foot bus contains 36 seats and can comfortably hold 54 passengers. The vehicle load threshold for peak service is expressed as a ratio of 1.50. This means that all seats are filled and there are 18 standees per bus.

The 60-foot articulated bus contains 55 seats and can comfortably hold 85 passengers. The vehicle load threshold for peak service is expressed as a ratio of 1.50. This means that all seats are filled and there are 30 standees per bus.

Commuter Express/RAPID Service/Limited Stop Peak[4]

Two bus types provide Express service in the region—a standard 40-foot bus and a 60-foot articulated bus.

A 40-foot bus contains 36 seats and can comfortably hold 54 passengers. The vehicle load threshold for peak service is expressed as a ratio of 1.50. This means that all seats are filled and there are 18 standees per bus.

The 60-foot articulated bus contains 55 seats and can comfortably hold 85 passengers. The vehicle load threshold for peak service is expressed as a ratio of 1.50. This means that all seats are filled and there are 30 standees per bus.

Community Circulator Service

The buses used for the circulators can, on average, seat 17 passengers and comfortably hold 23 passengers. The vehicle load threshold for all day service (such as the BUZZ, ZOOM, MARY, ALEX, SMART, DASH and Or-

bits) is expressed as a ratio of 1.35. This means that all seats are filled and there are 6 standees per bus. All buses providing this service are ADA accessible.

Rural Connector

The buses used for the rural connectors can, on average, seat 32 passengers and comfortably hold 38 passengers. The vehicle load threshold for all day service is expressed as a ratio of 1.18. This means that all seats are filled and there are 9 standees per bus. All buses providing this service are ADA accessible.

1.2 Vehicle Load Data Collection

To determine the vehicle load, the following data is gathered:

- Annual random ride check samples or APC data
- Each ride check is one trip on a route
- AM Peak direction samples Monday through Friday
- PM Peak direction samples Monday through Friday
- Samples collected annually throughout the year

1.3 Vehicle Load Assessment

Using the data above, the following analysis is done to determine the vehicle load:

Local Fixed Route Service (Local Bus, Key Local Bus, Limited Stop All-Day)

- Determine number of minority and non-minority routes that have a maximum load ratio of less than 1.50 for AM and PM peak times and calculate the percentages
- Repeat the calculations for low-income and non-low-income routes
- Compare level of service between minority and non-minority routes and low-income and non-low-income routes

Commuter Express/RAPID Service/Limited Stop Peak

- Determine number of minority and non-minority routes that have a maximum load ratio of less than 1.50 for AM and PM peak times and calculate the percentages
- Repeat the calculations for low-income and non-low-income routes
- Compare level of service between minority and non-minority routes and low income and non-low-income routes

Community Circulator Service

- Determine number of minority and non-minority routes that have a maximum load ratio of less than 1.0 for AM and PM Non-Peak times and calculate the percentages
- Determine number of minority and non-minority routes that have a maximum load ratio of less than 1.40 for AM and PM peak times and calculate the percentages
- Repeat the calculations for low-income and non-low-income routes
- Compare level of service between minority and non-minority routes and low income and non-low-income routes

Rural Connector

- Determine number of minority and non-minority routes that have a maximum load ratio of less than 1.35 for all trip times and calculate the percentages
- Repeat the calculations for low-income and non-low-income routes

- Compare level of service between minority and non-minority routes and low income and non-low-income routes

2.0 VEHICLE HEADWAY

Vehicle headway standards are based on the TSPM for regionally funded routes. Transit service standards and performance measures represent rules and guidelines by which the performance of the region's transit system may be evaluated, and decisions regarding transit investments may be prioritized and measured.

2.1 Vehicle Headway Standard

Vehicle headway is the time interval between two vehicles traveling in the same direction on the same route. Table 6 shows the vehicle headway standards for the region.

Table 6 – Vehicle Headway Standards

Service Type	Minimum Headway or Daily Trips	Minimum Span (Week/Sat/Sun)	Minimum Operating Days
Rural Connector	4 trips inbound/4 trips outbound	NA	Mon–Fri
Community/Circulator	30 min	12 hrs/0 hrs/0 hrs	Mon–Fri
Local Bus	30 min*	16 hrs/14 hrs/12 hrs	Mon–Sun
Service Type	**Minimum Headway or Daily Trips**	**Minimum Span (Week/Sat/Sun)**	**Minimum Operating Days**
Key Local Bus	15 min peak/30 min base*	16 hrs/14 hrs/12 hrs	Mon–Sun
Limited Stop Peak	4 trips AM/4 trips PM	NA	Mon–Fri
Limited Stop All-Day	Headways same as LRT, up to	16 hrs/14 hrs/12 hrs (same	Mon–Fri
Commuter Express	4 trips AM/4 trips PM	NA	Mon–Fri
Light Rail Transit	12 min peak/20 min base	18 hrs/14 hrs/12 hrs	Mon–Sun

**60 min early morning and late night*

For rural connector routes, limited stop peak and commuter express routes, service availability is applied based on a number of daily trips rather than frequency.

2.2 Vehicle Headway Data Collection

Local Fixed Route Service (Local Bus, Key Local Bus, Limited Stop All-Day)

- Measure standard using published fixed route service schedules (no Express, RAPID, Limited Stop Peak or circulator routes)

Commuter Express/RAPID Service/Limited Stop Peak

- Measure standard using published Express, RAPID and Limited Stop Peak service schedules

Circulator Service

- Measure standard using published circulator route service schedules

Rural Connector

- Measure standard using published Rural Connector service schedules

2.3 Vehicle Headway Assessment

- Determine number of minority and non-minority routes that have a peak headway meeting or exceeding the headway standard for each service type and calculate the percentages
- Repeat the calculations for low-income and non-low-income routes
- Compare level of service between minority and non-minority routes and low-income and non-low-income routes

3.0 ON TIME PERFORMANCE

3.1 On Time Performance Standard

On time performance is a measure of bus runs for a particular route completed as scheduled. The service standard threshold is defined as 90 percent or better of all trips on a particular route completed within the allowed on-time window (no more than 0 minutes early and 5 minutes 59 seconds late, compared to scheduled arrival/departure times at published time points).

3.2 On Time Performance Data Collection

- Measure standard using Valley Metro operated local fixed routes
- Report data on a monthly basis
- Use Vehicle Management System (VMS) data. VMS data is not available for the circulators GUS I, II, III and Tempe's Orbits

3.3 On Time Performance Assessment

- Determine number of minority and non-minority routes that have an on-time performance of 90 percent or better on an annual basis and calculate the percentages
- Repeat the calculations for low-income and non-low-income routes
- Compare level of service between minority and non-minority routes and low-income and non-low-income routes

4.0 SERVICE AVAILABILITY

Transit amenities are locally funded and fall under the responsibility of the jurisdictions within which they are sited. The service availability and service availability assessments are the responsibility of the individual municipalities.

4.1 Service Availability Standard

Service availability is measured by the distribution of bus stops within the regional service area that afford residents accessibility to transit. The service standard is consistent with the TSPM standard and has the following thresholds for each service:

Local Bus and Key Local Bus

- Bus stops are placed approximately 0.25 mile apart. Where development patterns are of higher or lower density than typical within the region, an exception to the recommended stop spacing standard may be warranted

Limited Stop Peak and Limited Stop All-Day

- Bus stops are placed approximately one mile apart. Where development patterns are of high-

er or lower density than typical within the region, an exception to the recommended stop spacing standard may be warranted

Express/RAPID Service

- Express/RAPID stops are strategically placed and are generally located at park-and-ride facilities
- No more than four inbound Express bus stops
- Outbound Express/RAPID stops behave more like a local service and will pick up or drop off passengers more frequently

Community Circulator Service

- Bus stops within the designated stop area of each circulator route are placed no more than 0.25 mile apart
- In the flag stop zone area of each circulator route, passengers can be picked up anywhere along the route

4.2 Service Availability Data Collection

- Bus stop database

4.3 Service Availability Assessment

- Identify number of bus stop spacing gaps on each route
- Calculate the number of bus stop spacing gaps that do not meet the standard as a percentage of the total number of bus stop spacing gaps on a given route
- Compare percentage of bus stop location gaps that do not meet the standard by minority versus non-minority routes and low-income versus non-low- income routes

Regional Service Policies for Light Rail Service

1.0 VEHICLE ASSIGNMENT

1.1 Service Policy

The Vehicle Assignment service policy generally addresses the equitable assignment of transit vehicles to depots and routes throughout the entire transit system in terms of minority and low-income populations compared to non-minority and non-low income populations. This policy measures whether transit vehicles are equitably assigned considering the age of the vehicle, type of fuel used, number of seats in the vehicle and whether or not the vehicle is high or low floor. However, Valley Metro has one light rail route with a single type of fleet. Valley Metro's light rail fleet consists of 50 vehicles of the same design, passenger load, amenities and age. The light rail vehicles are considered low floor at each of the four doors to allow level boarding at each of the 35 light rail stations. Each light rail vehicle is equipped with air conditioning and heating, automated stop announcements, a bike rack that holds four bikes and folding seats to accommodate four wheel chairs.

1.2 Service Assessment

All vehicles put into service each day run along the one light rail route and have the same amenities and quality for all passengers riding the system. Until new routes are added to the system that contain different vehicles, no assessment of vehicle assignment is warranted.

2.0 DISTRIBUTION OF TRANSIT AMENITIES

2.1 Service Standard

Transit amenities refer to items of comfort and convenience available to the general riding public. Valley Metro's *Design Criteria Manual* includes a chapter on light rail station design. This chapter provides standards for the design of each station and the amenities that will be incorporated into each station. Each of the 28 stations within Valley Metro's current light rail system contain the following amenities:

- Shading and climate protection
- Seating
- Lighting
- Drinking fountain
- Trash receptacles
- Platform information maps
- Emergency call boxes
- Closed circuit television cameras
- Public address system/variable message boards
- Ticket vending machines
- Double loading light rail station platforms (except where adequate pedestrian crossing is not available)

In addition, each station has a securable rack for four bicycles located at street intersections adjoining the station entrances. Although the *Design Criteria Manual* has been developed as a set of general guidelines for planning and design of the light rail system, deviations from these accepted criteria may be required in specific instances based on community characteristics or other requests. Typically, new development is compliant with the *Design Criteria Manual*.

2.2 Service Assessment:

Valley Metro will conduct field observations once a year to determine if each station still contains the following amenities in good operational order:

- Information maps and public announcements at each station are in English and Spanish
- Ticket vending machines at each station entrance
- Seating
- Waste receptacles
- Bike racks
- Lighting

Regional Service Standards for Light Rail Service

1.0 VEHICLE LOAD

1.1 Vehicle Load Standard

Vehicle Load (also known as maximum load) is the ratio of the number of passengers on a vehicle to the number of seats. For the existing light rail system (26-mile fixed route rail service), a single light rail vehicle contains 66 seats and can hold comfortably 140 passengers. The vehicle load threshold for peak service for comfortable accommodation is expressed as a ratio of 2.12. This means that all seats are filled and there are 74 standees per train.

A single vehicle has a maximum capacity (crush factor) of 226 passengers. The vehicle load threshold for peak service for maximum capacity is expressed as a ratio of 3.42. This means that all seats are filled and there are 160 standees per train.

Valley Metro has the ability to operate consists of up to three light rail vehicles.

1.2 Vehicle Load Data Collection

Average weekday loads on the light rail will be determined by the following:

- Ride check the light rail route using the APC data
- AM in the peak direction (6–9 a.m.) Monday through Friday
- PM in the peak direction (3–6 p.m.) Monday through Friday

Samples will be collected semi-annually during the months of April and November to determine if the standard vehicles load is exceeded.

1.3 Vehicle Load Assessment

Valley Metro currently has one light rail line operating in the region with all vehicles being exactly the same. Therefore, the data collected above will be used to determine the vehicle load.

2.0 VEHICLE HEADWAY

2.1 Vehicle Headway Standard

Vehicle headway is the time interval between two vehicles traveling in the same direction on the same line. Table 6 shows the vehicle headway thresholds for the light rail system.

Service operates regionally every 12 minutes in the peak hours (6 a.m.–7 p.m.) each weekday, every 20 minutes in the off peak hours (4 a.m.–6 a.m. and 7 p.m.–12 a.m.) each weekday and every 20 minutes all day on weekends.

Table 6 – Vehicle Headway Standards

Service Type	Headway - Peak	Headway – Off Peak
Weekday	12 minutes	20 minutes
Saturday	20 minutes	
Sunday / Holiday	20 minutes	

2.2 Vehicle Headway Data Collection and Service Assessment

Valley Metro currently has one light rail route under operation with 28 stations and the headway is monitored on a daily basis. As new extensions are added to the current light rail ends of line (extending light rail from current end-of-line at Sycamore and Montebello) the service assessment will be for this route in its entirety. As new routes to the system are brought into service, the service assessment will be by individual routes. Headways are monitored at the Operations Center and will be assessed by the following:

- AM in the peak direction (6–9 a.m.) weekdays
- PM in the peak direction (3–6 p.m.) weekdays
- AM in the peak direction (6–9 a.m.) weekends
- PM in the peak direction (3–6 p.m.) weekends

3.0 ON TIME PERFORMANCE

3.1 On Time Performance Standard

On time performance is a measure of a light rail trip (end-of-line Mesa Drive station to the end-of-line 19th Ave/Dunlap station) completed as scheduled. Once the extension in Mesa is complete and operational, the light rail trip will be measured from the end-of-line Gilbert Road station to the end-of-line 19th Ave/Dunlap station. The service standard threshold is defined as 93 percent or better of all trips on light rail route completed within the allowed on-time window (0 minutes early and 5 minutes late of scheduled arrival times).

3.2 On Time Performance Data Collection and Assessment

Valley Metro currently has one light rail route under operation and it has 35 stations. Valley Metro monitors the on-time performance on an annual basis and makes year to year comparisons. As new extensions are added to the current light rail ends of line, the service assessment will be for this route in its entirety. As new routes to the system are brought into service, the service assessment will be by individual routes. On-time performance is monitored at the Operations Center and is assessed through the SCADA network by the following:

- AM in the peak direction (6–9 a.m.) weekdays
- PM in the peak direction (3–6 p.m.) weekdays
- AM in the peak direction (6–9 a.m.) weekends
- PM in the peak direction (3–6 p.m.) weekends

4.0 SERVICE AVAILABILITY

4.1 Service Availability Standard

Service availability is measured by the distribution of light rail stations along the light rail route that afford residents accessibility to the regional transit system. The service standard has two thresholds:

- Light rail stations are placed approximately one mile apart. Where development patterns are of higher or lower density than typical within the region, an exception to the recommended stop spacing standard may be warranted.
- General considerations for light rail stations are based on the following criteria:
  - Density of population and employment
  - Mix of land uses
  - Connection to other transit services
  - Pedestrian accessibility to the station
  - Planning and design characteristics that support transit oriented development and transit access

4.2 Service Availability Assessment

Valley Metro will assess the light rail service availability through the following:

- Identify light rail station-to-station spacing using the light rail station database
- Identify the minority and low-income populations served within 0.5 mile of each station
- Estimate the number of transit connections at each station

Section 5: Demographic Data and Maps

5.1 Demographic Data Overview

The city of Phoenix uses demographic data to assess equity in distribution of services, facilities, and amenities in relation to minority, low-income and limited English proficient populations. Such data enables the city to monitor ongoing service performance, analyze the impacts of policies and programs on these populations and take appropriate measures to avoid or mitigate potential disparities. The maps and charts must be updated: 1) at least every three years, 2) after each Federal census data become available, and 3) when there are significant changes in the transit system.

Valley Metro is the regional public transportation agency providing coordinated, multi-modal transit options to residents of Maricopa County and the region's service area. Valley Metro provided the demographics for this report.

The demographic data shown in this report is from the following sources:

- 2011-2016 American Community Survey (ACS)
- 2014-2015 Onboard Survey (O&D), please refer to ***Attachment G: 2014-2015 On-board Transit Survey Report***

5.2 Valley Metro Demographic Data Overview

OVERVIEW

This section is a demographic analysis of the population within Maricopa County and Valley Metro's Service Area, which is a 0.5-mile radial buffer around fixed route services. In order to be familiar with the low-income and minority demographics of the area, Valley Metro uses the most current and accurate data available from the US Census Bureau and the Valley Metro Origin and Destination Survey that is conducted every three years.

The following data for minority and low-income populations were gathered from the Census Bureau's 2016 ACS 5-year estimates. Low income is defined as the population with incomes at or below 150 percent of the Department of Health and Human Services poverty level.

This section also provides a summary of the results from the 2015 On-Board Survey, which is currently the best available data to observe ridership characteristics and fare usage of minority and low-income populations on fixed routes within the Valley Metro network.

CENSUS DATA

Table 3 summarizes the minority and low-income populations of all the Census Tracts within Maricopa County and Valley Metro's service area, the 0.5-mile radial buffer around fixed route transit services, based on data from the 2016 ACS 5-year estimate. Map 1 (page 36) shows the service area and Maricopa County.

Table 3 Minority and Low-Income Population Summary

	Total Population	Minority Population	Percent Minority (%)	Low-Income Population	Percent Low-Income (%)
Maricopa County	4,088,549	1,649,507	40.3	1,022,955	25.0
Service Area (1/2-mile buffer around fixed route service)	3,388,039	1,484,044	43.8	923,961	27.3

Table 4 summarizes the racial distribution among the population within Maricopa County and service area. The total minority population within the service area is 1,484,044, or 43.8 percent of the total population. The three largest racial groups, other than White, are Asian, Black/African American and American Indian/ Alaskan Native. The category Two or More Races represents people who consider themselves to be any combination of races. The other categories represent people who consider themselves to be of one race. It should be noted that the category Hispanic/Latino is an ethnicity, not a race.

Table 4 Racial and Hispanic Distribution

Total Population	White	African American	American Indian	Asian	Other Races	Two or More Races	Hispanic/ Latino (any Race)
Maricopa County							
4,088,549	3,214,001	216,064	77,142	157,074	281,320	134,523	1,142,981
100%	78.6%	5.3%	1.9%	3.8%	6.9%	3.3%	28.0%
Service Area							
3,388,039	2,599,852	193,429	71,197	132,523	267,105	116,406	1,043,557
100%	76.7%	5.7%	2.1%	3.9%	7.9%	3.4%	30.8%

PASSENGER SURVEY (ORIGIN AND DESTINATION SURVEY)

Valley Metro conducted a transit on-board survey during the spring of 2015. The purpose of the survey was to better understand the travel patterns of transit users in the metropolitan Phoenix area. The results of the survey will be used to update regional travel demand models and improve the overall quality of transit service in the region.

The goal was to obtain useable surveys from approximately 15,621 passengers. The actual number of usable surveys was 21,803. Of the useable surveys, 9,350 were completed with light rail passengers and 12,453 were completed with bus passengers. The magnitude of the survey will allow regional planners to better understand the needs and travel patterns of many specialized populations. For example, the final database contains responses from:

- Nearly 11,800 people who do not have cars
- More than 2,300 people under age 18

- More than 2,900 people age 55 or older
- More than 5,300 people with Hispanic or Latino ethnicity
- More than 5,500 students, including nearly than 3,600 college/ university students and more than 1,700 students in grades K-12
- Nearly 4,500 people living in households with incomes less than $15,000 per year
- More than 15,200 people who were employed full or part time
- Nearly 2,400 people who were not employed but were seeking work

Major Findings

Some of the major findings from the survey include the following:

- Sixty percent of all transit riders (60.3 percent) are between the ages of 19 and 34
- Over half of all Valley Metro transit riders (53.8 percent) do not have a valid driver's license
- Walking is the dominant access and egress mode for all riders, on average 88.0 percent
- About two-thirds (65.9 percent) of Valley Metro transit riders use only one route to complete their one-way trip
- Almost one-fourth (23.7 percent) of all Valley Metro transit riders speak another language besides English at home

Please refer to ***Attachment G: 2014-2015 On-board Transit Survey Report***.

5.3 Demographic Maps Overview

Following is a description for each map on the following seven pages.

Map 1 displays all fixed bus routes and light rail transit service in the region.

Map 2 displays a closer view of fixed route transit service in the region.

Map 3 displays a closer view of the minority population and their relation to regional transit system amenities, which includes bus stops, light rail stations, park-and-ride facilities, operation facilities and transit centers.

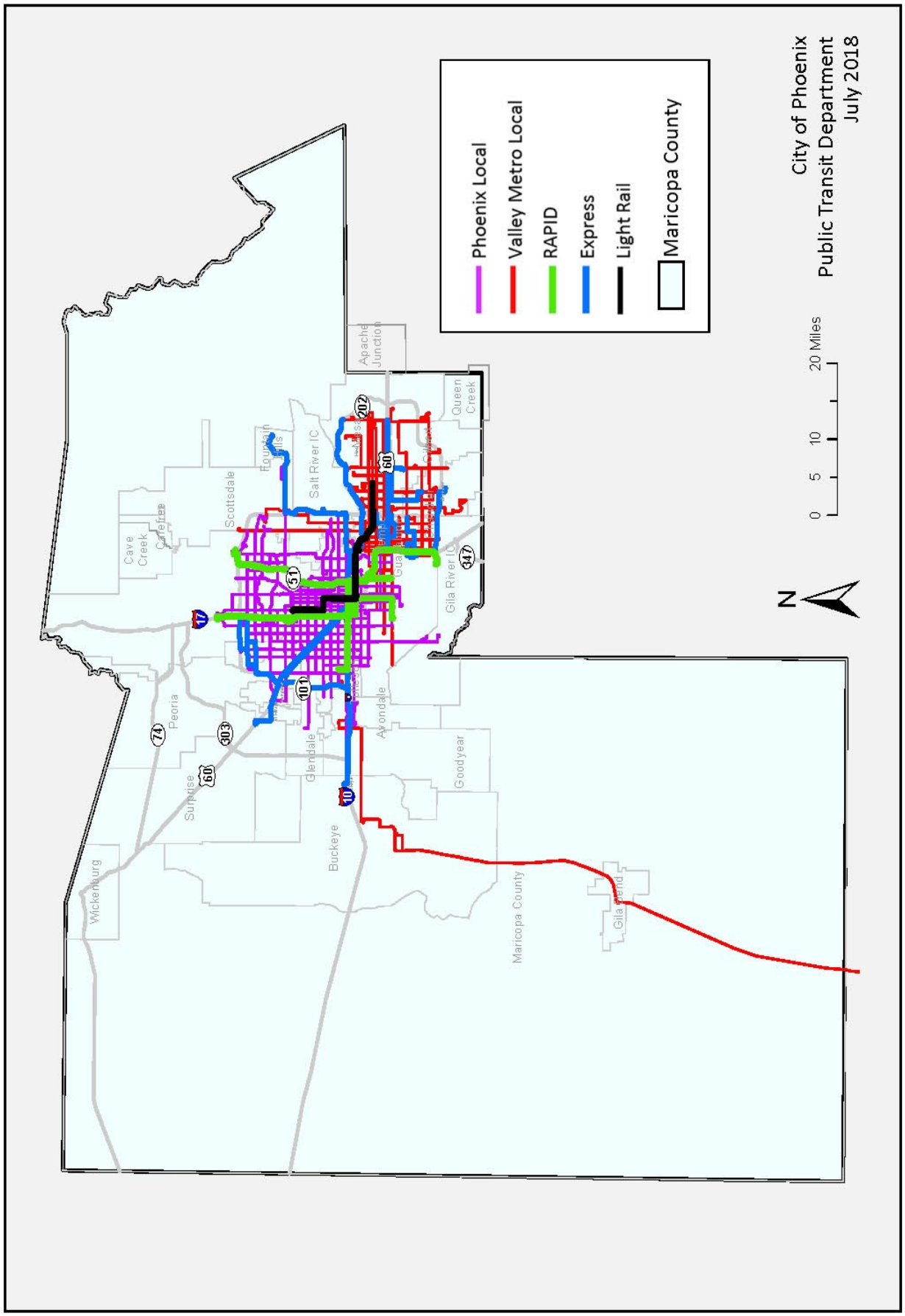
Map 4 visually represents the low-income population and their relation to the regional transit system amenities which includes bus stops, light rail stations, park-and-ride facilities, operation facilities and transit centers.

Map 5 displays the concentrations of minority population within the fixed route transit service area by showing the census tracts that are below and above the route service area minority population average.

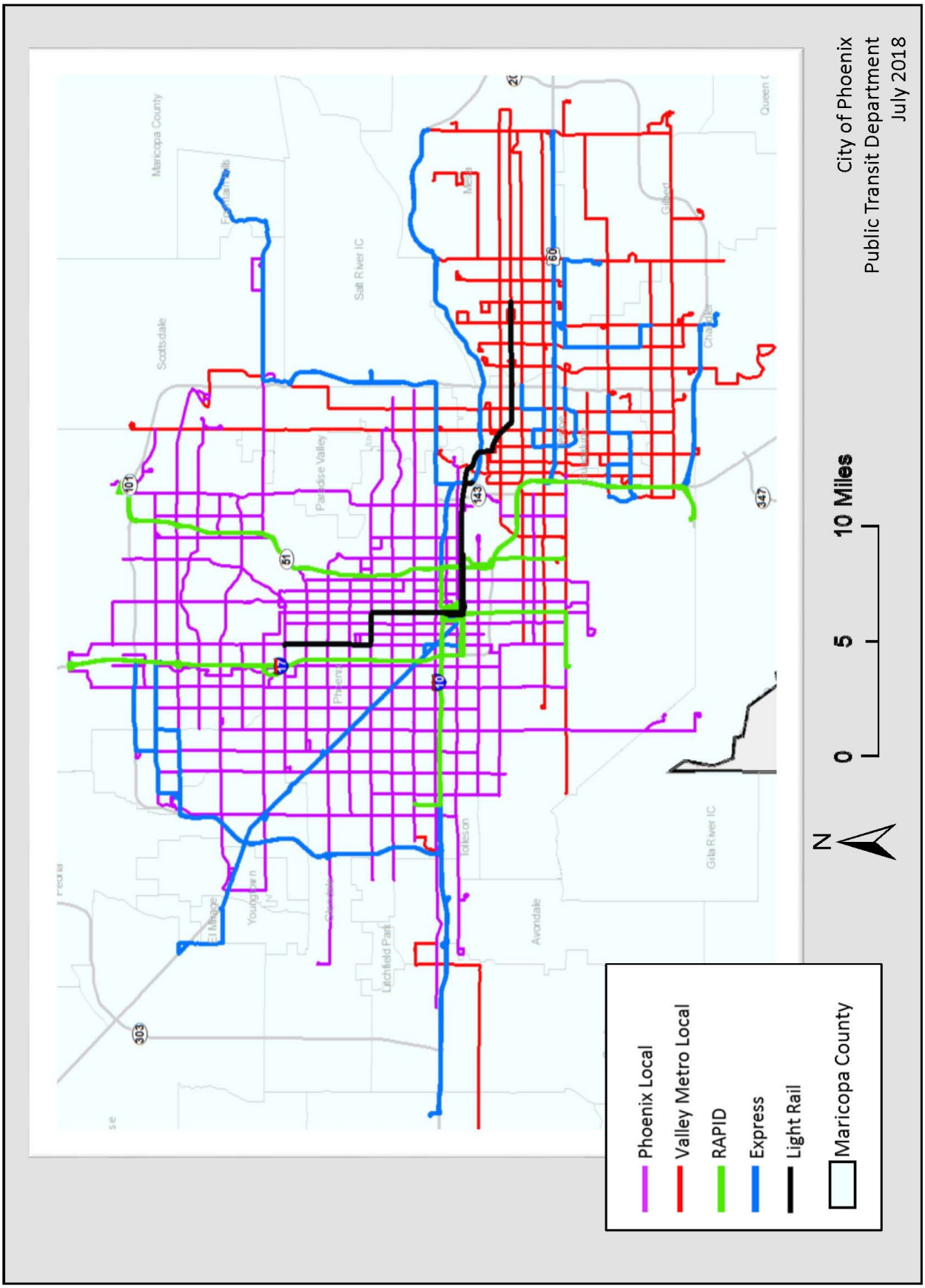
Map 6 displays the concentration of low-income populations within the fixed route transit service area by showing the census tracts that are below and above the route service area low-income population average.

Map 7 displays the population within Maricopa County that speak English less than very well, per census tracts, and the fixed route transit service area.

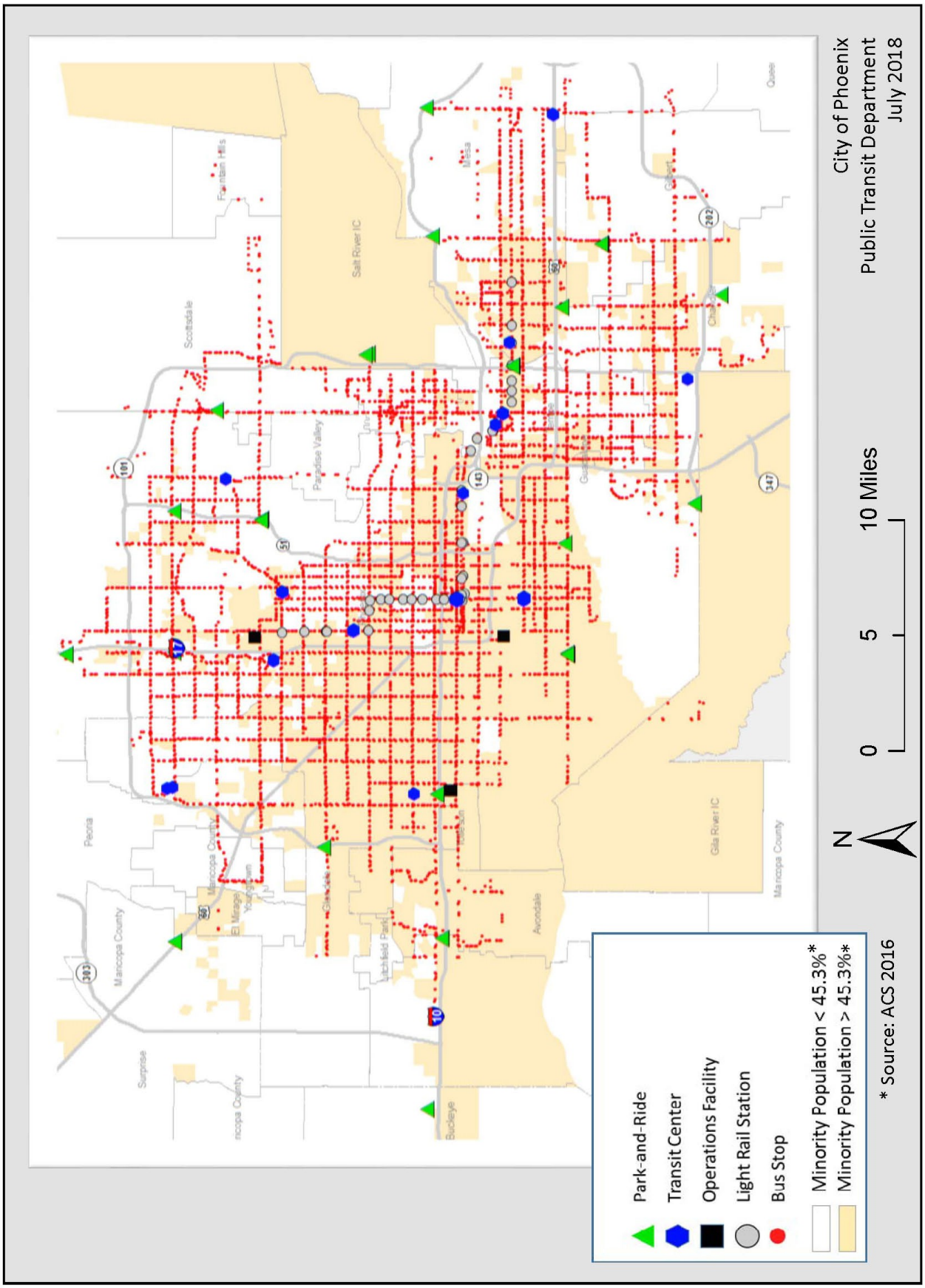
Map 1: Maricopa County and Regional Fixed Route Transit Service



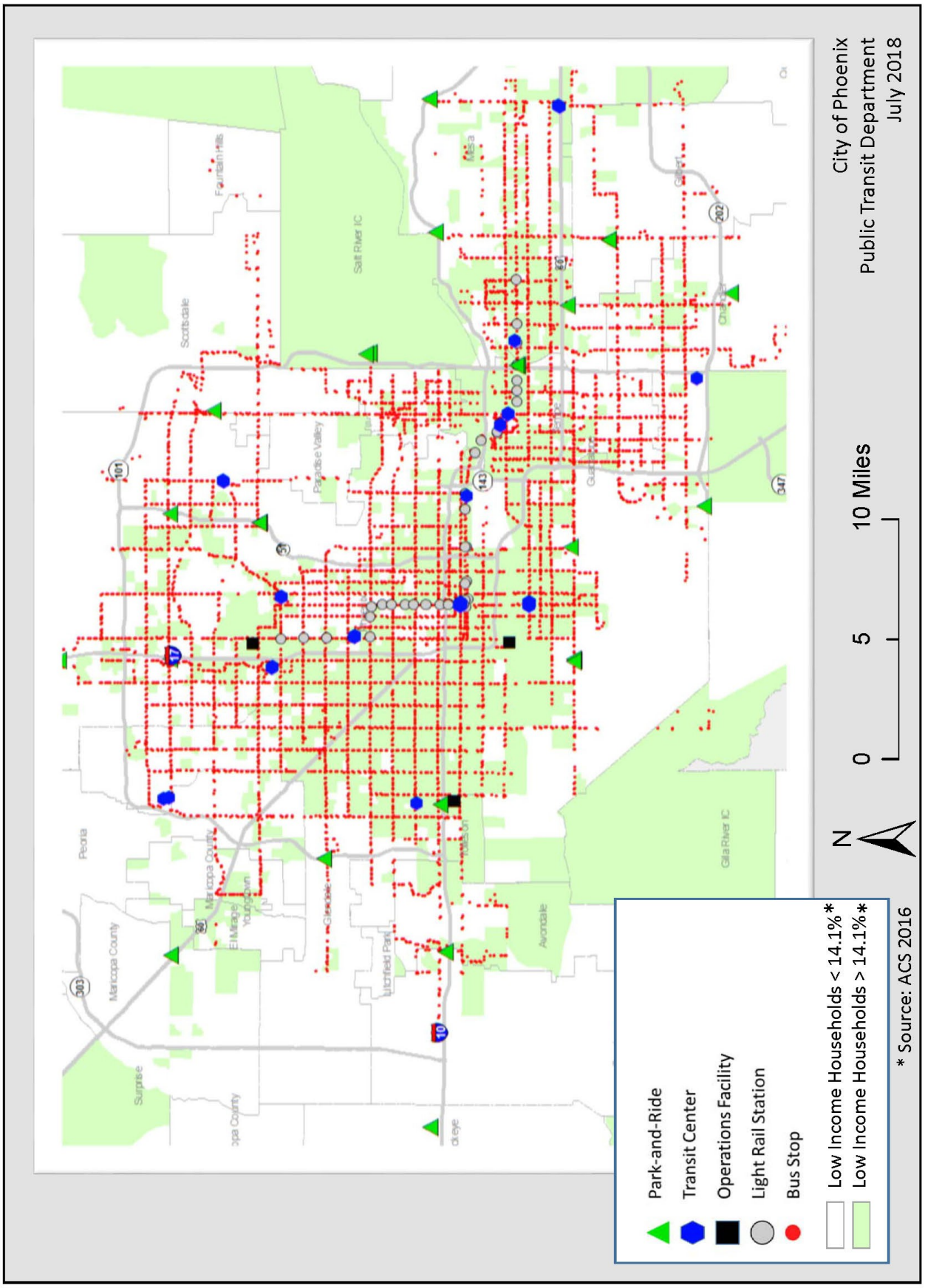
Map 2: Maricopa County and Regional Fixed Route Transit Service (Zoom View)



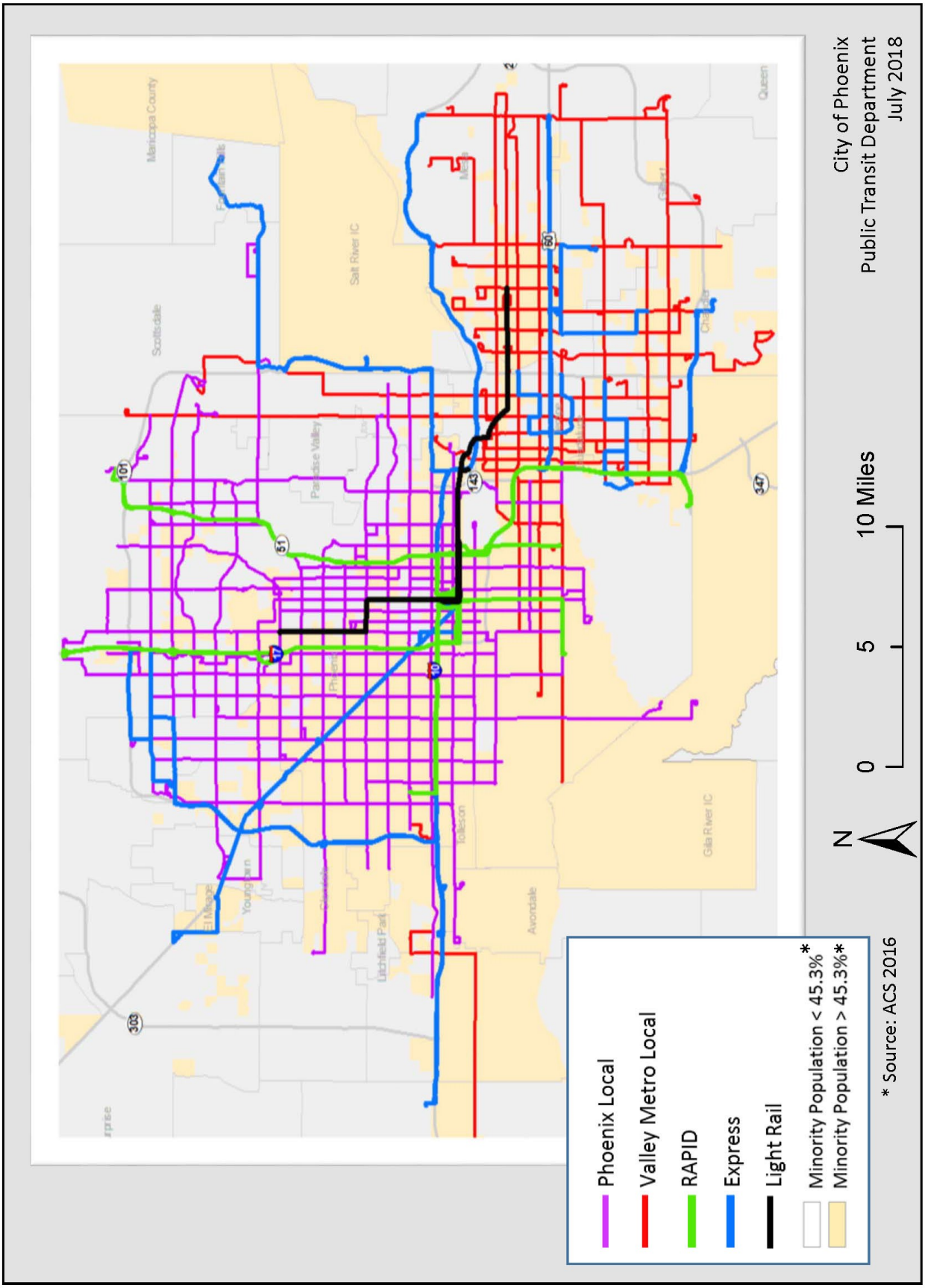
Map 3: Regional Fixed Route Amenities and Minority Population



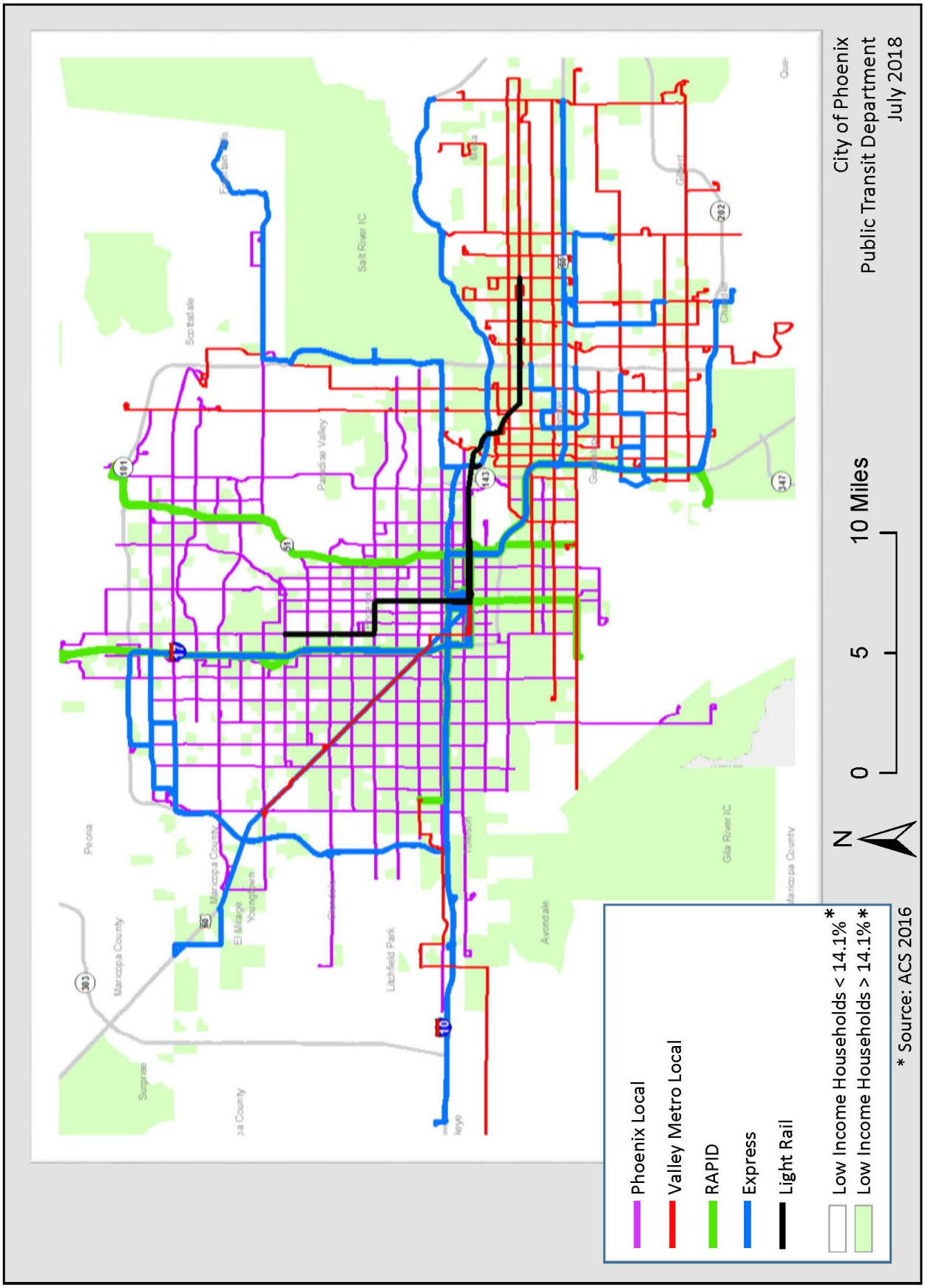
Map 4: Regional Fixed Route Amenities and Low-Income Population



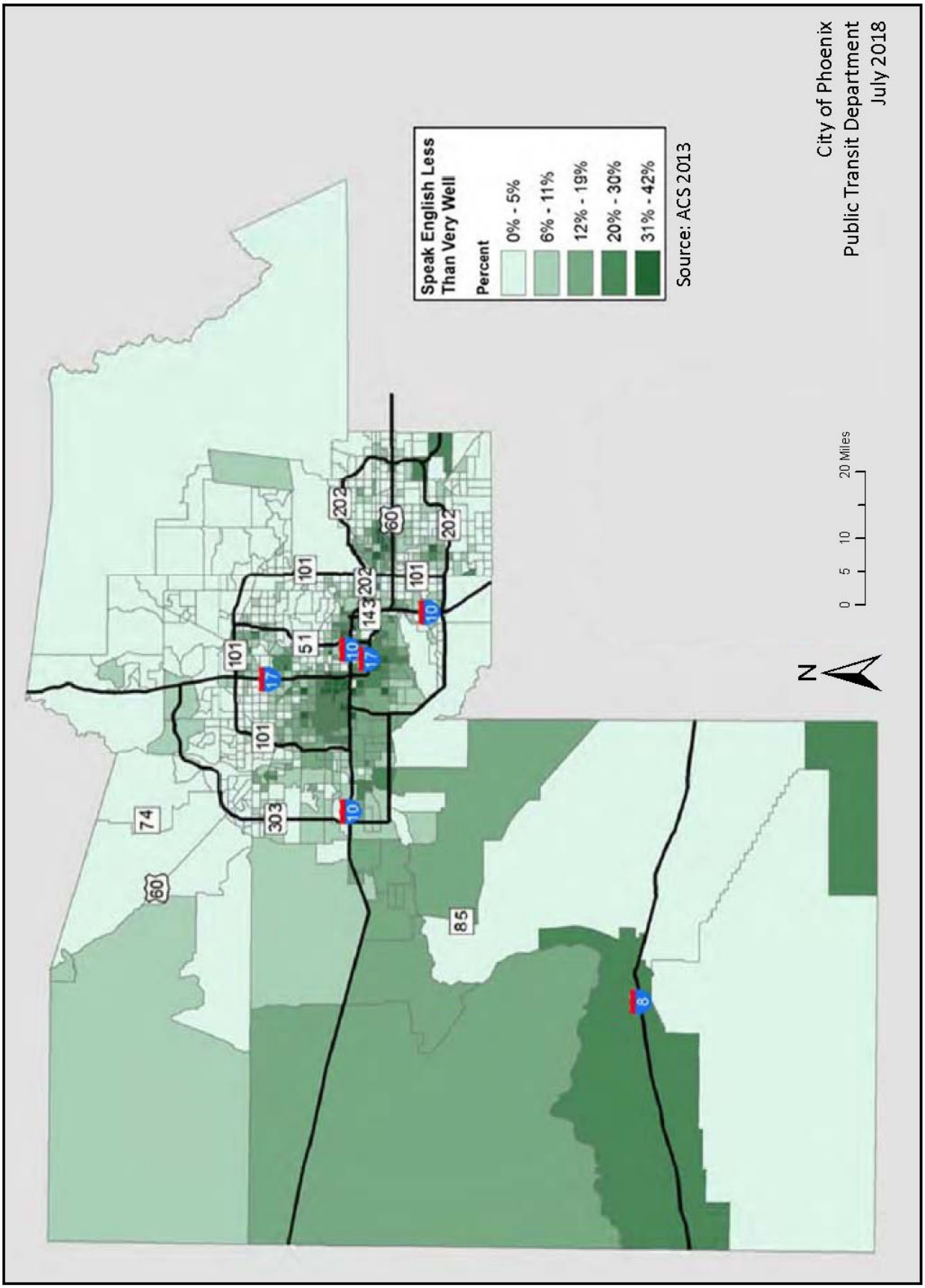
Map 5: Regional Fixed Route Transit Service and Minority Population



Map 6: Regional Fixed Routes and Low-Income Population



Map 7: Regional Limited English Proficiency Population



Section 6: Monitoring Transit Service

6.1: Monitoring Transit Service

FTA requires transit providers to monitor the performance of their transit system relative to their system-wide service standards and service policies. The city of Phoenix frequently monitors its bus services and the siting of transit amenities in an objective manner to identify the potential for adverse, disproportionately high, or disparate impacts to minority populations. Per FTA requirements, the monitoring report will be utilized to provide suggested corrective actions for consideration, awareness and approval by city council.

The city of Phoenix's Title VI 2018 Monitoring Program is guided by the FTA Circular 4702.1B, Chapter IV-9 and the City's System-Wide Standard and Policies.

The city of Phoenix has completed an evaluation of transit services based on the System-Wide Standards and Policies identified in Chapter 4 of the report. This report is intended to monitor compliance with the Regional Standards and Policies for fixed route services. Please refer to ***Attachment F: 2018 Monitoring Report***.

Findings

1. Peak Headway/Peak Trip: One circulator does not meet 30-minute frequency standard. Mini mum headway for circulators is 30 minutes, the headway for ALEX (Minority) is every 60 minutes. Prior to the recession, circulators in Phoenix all ran every 30 minutes. In 2010, circu lator services were reduced to every 60 minutes in Phoenix as a result of reduced funding. All other routes meet the 30-minute frequency standard.

   The city of Phoenix Public Transit Department does have plans to increase circulator service by implementing 30-minute headway in the next five years.

2. On Time Performance**:** Two fixed routes, Route 7 and Route 27, fall below the 90 percent on-time performance standard.

   The city of Phoenix Public Transit Department will evaluate run times and work with our operating contractor to improve on time performance.

3. Percent Stops with Shade**:** Currently none of the bus routes in Phoenix have 100% shaded bus stop coverage. However, from the analysis, it was found that shaded versus non-shaded stops were near equitably distributed amongst both minority versus non-minority stops.

   Shade structure installation is currently prioritized by stop boarding volume. Going forward, minority area status will be added as an additional prioritization factor for shade structure installation.

As noted above many of the deficiencies will be addressed through planned Projects.

Section 7: Service and Fare Changes

7.1 Service Equity Analysis

The city of Phoenix has implemented several changes since 2015 as reported in the following Equity Analysis. The city of Phoenix conducted a number of public outreach events and solicited public comment throughout the region.

Table 4: Service Equity Analysis Report

Phoenix Bus Service Changes Approval Dates					
	Citizens Transportation Commission	Transportation & Infrastructure Subcommittee	City Council	Service Implementation Date	Estimated Financial Impact
April 2018	1/4/2018	1/9/2018	1/24/2018	4/23/2018	$ 1,810,000
October 2017	5/25/2017	6/13/2017	8/30/2017	10/23/2017	$ 1,372,000
April 2017	11/17/2016	12/13/2016	1/11/2017	4/24/2017	$ 10,270,000
October 2016	5/26/2016	6/16/2016	6/21/2016	10/24/2016	$ 17,300,000
April 2016	11/10/2015	12/8/2015	1/6/2016	4/25/2016	$ 709,700
October 2015	5/7/2015	6/9/2015	7/1/2015	10/26/2015	$ (67,400)
April 2015	10/24/2014	12/9/2014	3/4/2015	4/27/2015	$ 500

Title VI Service Equity Analysis Report, are provided in ***Attachments H.1 to H.7***.

7.2 Major Service Change Policy

All changes in service meeting the definition of "Major Service Change are subject to a Title VI Equity Analysis prior to city council approval of the service change. A Title VI Equity Analysis will be completed for all Major Service Changes and will be presented to the boards for its consideration and included in the subsequent city of Phoenix Title VI Program report with records of approval dates. Please refer to ***Attachment I: Major Service Change Equity Evaluation***.

7.3 Fare Changes

The city of Phoenix has not implemented any fare changes since March 1, 2013.

Section 8: Conclusion and Definitions

8.1 Conclusion

The goal of this plan is to document and enhance opportunities for Title VI populations to have a meaningful voice, to receive equal benefits from the city of Phoenix Public Transit Department activities without shouldering a disproportionate share of burdens. The plan itself is considered a work in progress that will evolve as people's needs and participation in the process change.

For more information, please contact the Title VI Coordinator at (602) 262-7242. Thank you for your support of the city of Phoenix Public Transit Department's efforts throughout the Metropolitan Phoenix area.

8.2 Definitions

City of Phoenix Public Transit Department: The city of Phoenix Public Transit Department is one of 16 agencies that are members of the Valley Metro regional transit system. The Department operates 70 percent of transit service in the Metropolitan Phoenix area and is the primary recipient of federal funding for public transit in the region. The city of Phoenix Transit Department is responsible for operating a complex transit system, in addition to building and maintaining transit facilities and bus stops throughout the City. The city of Phoenix is also the designated recipient of federal transit funding for Section 5310 funds for the Phoenix/Mesa Urbanized area, providing oversight to organizations providing transportation services to seniors and people with disabilities.

Valley Metro (Valley Metro Regional Public Transportation Authority): Valley Metro is the regional public transportation agency providing coordinated, multi-modal transit options to residents of greater Phoenix. With a core mission of advancing a total transit network, Valley Metro plans, develops and operates the regional bus and light rail systems and alternative transportation programs for commuters, seniors and people with disabilities.

In 1993, the name Valley Metro was adopted as the identity for the regional transit system in the metropolitan Phoenix region. Under this brand name, local governments set the policy for the regional system that operates throughout the Valley.

Valley Metro is governed by two Boards of Directors. The Regional Public Transportation Authority (RPTA) Board consists of 16 public agencies (15 cities and Maricopa County) that set the policy direction for all modes of transit except light rail. The Valley Metro Rail Board consists of five cities that set the policy direction for light rail high-capacity transit. The Boards and the agency work to improve and regionalize the public transit system.

Maricopa Association of Governments (MAG): MAG serves as t**he regional planning agency and Council of Governments for the metropolitan Phoenix area.** When MAG was formed in 1967, the elected officials recognized the need for long-range planning and policy development on a regional scale. They realized that many issues such as transportation, air quality and human services affected residents beyond the borders of their individual jurisdictions. MAG is the designated metropolitan planning organization (MPO) for transportation planning in the Maricopa metropolitan region, including Maricopa County and portions of Pinal County. MAG has also been designated by the Governor to serve as the principal planning agency for the region in a number of other areas, including air quality, water quality and solid waste management. In addition, through an Executive Order from the Governor, MAG develops population estimates and projections for the region.

Title VI: The Civil Rights Act of 1964 is a comprehensive U.S. law intended to end discrimination based on race, color, religion, or national origin. It guarantees a number of protections, including nondiscrimination in the distribution of funds under federally assisted programs, or Title VI. Specifically, it states, "No **person** in the **United States** shall, on the grounds of **race**, **color**, or **national origin** be **excluded from participation in**, **denied the benefits of**, or **subjected to discrimination** under **any program or activity receiving federal financial assistance.**" (42 USC 2000d).

Section 8: Conclusion and Definitions

Communities of Concern: Federal legislation has identified vulnerable populations that receive protection to end discrimination and ensure equal access to all federally funded services. This includes the Civil Rights Act of 1964, Executive Order 12898, and Executive Order 13166. These mandated populations include minorities, people with low incomes, people with Limited English Proficiency (LEP), and people with disabilities.

Executive Order 12898: In 1994, President Bill Clinton signed Executive Order 12898, which mandated equitable treatment of minorities and people with low incomes by requiring federal agencies and recipients of federal funding to **identify**, and **address**, as appropriate, certain **disproportionately high** and **adverse** effects of its programs, policies, and activities on **minority populations** and **low income populations**.

Limited English Proficiency: In 2000, President Clinton signed Executive Order 13166, which mandated that people with limited English proficiency (LEP) have meaningful access to services. This requires federal agencies and recipients of federal funding to examine their services and establish guidance on how populations with limited English proficiency can access services, prepare a plan to overcome barriers, and ensure people with limited English proficiency have adequate opportunities for input. A person with limited English proficiency is described as a person who does not speak English as a primary language and has a limited ability to read, write, speak and understand English. A population is defined as LEP when five percent or more of the people living in a geographic area fit this definition.

Attachment A - Valley Metro's Public Participation Plan

Valley Metro Public Participation Plan

Introduction

The regional transit public input/outreach process is conducted by Valley Metro for various transit-related activities and actions. Throughout the year, Valley Metro conducts public outreach activities related to capital projects, transit service changes, fare changes, and other transit-related events. This Title VI Public Participation Plan was established to ensure adequate inclusion of the public throughout the Phoenix metropolitan community in accord with the content and considerations of Title VI of the Civil Rights Act of 1964. Federal regulations state that recipients of federal funding must "promote full and fair participation in public transportation decision-making without regard to race, color or national origin." Valley Metro uses this Plan to ensure adequate involvement of low-income, minority and limited English proficient (LEP) populations, following guidance from the Title VI Requirements and Guidelines for Federal Transit Administration Recipients Circular (Circular).

Involving the general public in Valley Metro practices and decision-making processes provides helpful information to improve the transit system and better meet the needs of the community. Although public participation methods and extent may vary with the type of plan, program and/or service under consideration as well as the resources available, a concerted effort to involve all affected parties will be conducted in compliance with this Plan along with Federal regulations. To include effective strategies for engaging low-income, minority and LEP populations, the Circular suggests that the following may be considered:

- Scheduling meetings at times and locations that are convenient and accessible for minority and LEP communities.
- Employing different meeting sizes and formats.
- Coordinating with community- and faith-based organizations, educational institutions and other organizations to implement public engagement strategies that reach out specifically to members of affected minority and/or LEP communities.
- Considering radio, television print and/or digital ads or information on stations, in publications and through communication channels that serve LEP populations.
- Providing opportunities for public participation through means other than written communication, such as personal interviews or use of audio or video recording devices to capture oral comments.

Valley Metro currently practices all of these strategies, in compliance with Federal regulations, so that minority, low-income and LEP populations are informed and also have meaningful opportunities to engage in planning activities and provide input as part of the decision-making process.

Typical Public Participation Opportunities

Valley Metro provides opportunities to share information or receive public input through a variety of methods for public participation utilized to engage low-income, minority and LEP populations through many outlets.

For planning efforts, including fare and service changes, public meeting locations are held at a centralized area or near affected route areas and bilingual staff is available. Public notices and announcements are published in minority-focused publications; some examples include: the *Arizona Informant* (African American community), *Asian American Times* (Asian American community), *La Voz* and *Prensa Hispana* (Hispanic com-

munity). Press releases are also sent to these media sources regarding fare changes, service changes and other programs. Additionally, printed materials, including comment cards or surveys, are available in Spanish.

A key participation effort, the Rider Satisfaction Survey, is conducted every two years. This survey is administered on transit routes across the region, reaching transit riders that live in minority and/or low-income communities. The survey, administered in English and Spanish, measures rider satisfaction with transit services and captures comments for improvements.

Throughout the year, minority, low-income and LEP populations have access to information via the Valley Metro Customer Service Center. The Customer Service Center is open 5 a.m. to 10 p.m., Monday through Friday; 6 a.m. to 8 p.m. on Saturdays; and 8 a.m. to 5 p.m. on Sundays and designated holidays. Customer Service staff is multilingual.

Also available is the website at valleymetro.org. Most information including meeting announcements, meeting materials and other program information is available on the website in both English and Spanish. If users would like information in another language, Valley Metro features Google translate on its website. This allows Valley Metro to reach citizens in five languages with information on transportation services, proposed service changes and other programs.

Public Participation Methods

Valley Metro uses several specific public involvement techniques to ensure that minority, low-income and LEP persons are involved in transit decisions. Through the use of public involvement, media outlets and printed or electronic materials, Valley Metro disseminates information regarding planning efforts. These efforts include the activities described below.

- Public meetings, hearings and open houses are held regularly at community-familiar locations with public transportation access and at convenient times, in collaboration with city partners. These meetings provide an opportunity to meet with citizens and receive their comments and questions on proposed service changes and other programs. For each program, Valley Metro varies its meeting format in order to best engage the targeted population.
- Valley Metro has staff available at public meetings, hearings, events and open houses to answer questions and receive comments in both English and Spanish. Valley Metro also utilizes court reporters to record verbal comments at public hearings.
- Outreach for biannual service changes and other programs are conducted at or near the affected area, for example, along an affected bus route or at an affected transfer location, thus targeting the population that may be most impacted by proposed changes to service or routes. Oftentimes, these efforts are also executed at transit stations, community centers, civic centers or major transfer locations.
- Coordination with community- and faith-based organizations, educational institutions and other organizations occurs regularly. These coordination efforts assist Valley Metro in executing public engagement strategies that reach out to members of the population that may be impacted.
- Valley Metro conducts specially-tailored transit presentations to community groups. This includes mobility training for senior citizens and people with disabilities, as well as information on how to use the transit system for new residents and refugees. More comprehensive travel training is also conducted monthly at a regional center for customers with disabilities.
-
- All public meeting notices for biannual service changes and other programs are translated to Spanish. Notices regarding Valley Metro projects and programs are widely distributed to the public through multiple methods, including through community- and faith-based organiza-

tions as well as via door hangers, direct mail, newspaper advertisement, electronic messaging (email through existing database), social media, door-to-door canvassing and on-board announcements on the transit system.

- Valley Metro publishes advertisements of any proposed service or fare change in minority publications in an effort to make this information more easily available to minority populations. Additionally, Valley Metro sends press releases regarding service changes and other programs to Spanish-language media.
- Valley Metro offers online participation via social media, webinar and email input as an alternative opportunity for comment.
- Major surveying efforts are conducted in both English and Spanish to ensure that the data collected is representative of the general public.
- Valley Metro Customer Service staff is multilingual.
- All comments are documented in a centralized database. For biannual service changes, comments are categorized as "in favor," "not in favor" or "indifferent." Comment summary information is provided to Valley Metro's city partners for review and is also presented to the Valley Metro Board of Directors for consideration when taking action on proposed service changes.

Depending upon the type of project, program, or announcement, public participation methods may be customized to ensure that the general public is adequately involved in the decision-making process.

Conclusion

Valley Metro conducts public outreach throughout the year to involve the general public with agency activities and transit planning processes. Using a variety of communication techniques such as facilitating meetings at varied times and locations, using multiple formats, placing printed materials at multiple outlets and providing opportunities via phone and web to share or collect information, Valley Metro ensures that outreach efforts include opportunities for minority, low-income and LEP populations that may be impacted by the activity or transit planning process under consideration. Valley Metro will continue to involve all communities in an effort to be inclusive of all populations throughout the metro Phoenix area and to also comply with Federal regulations. Valley Metro will continue to monitor and update this Inclusive Public Participation Plan as part of the Title VI Program which is updated triennially.

Attachment B—Valley Metro Language Assistance Plan

Language Assistance Plan

Title VI Program

July 2018

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1.0 INTRODUCTION

In 1993, the Valley Metro Regional Public Transportation Authority (RPTA) board adopted the name Valley Metro as the identity for the regional transit system in the Phoenix metropolitan area. Under the Valley Metro brand, local governments joined to fund the Valley-wide transit system that serves more than 73 million riders annually. Valley Metro provides fixed route bus service, light rail service and complementary paratransit service across the region. Valley Metro distributes transit funds from the countywide transit sales tax to its member agencies including the cities of Tempe, Mesa, Glendale, Phoenix, Buckeye, Tolleson, Wickenburg, Surprise, Peoria, Chandler, Gilbert, El Mirage, Avondale, Goodyear, Scottsdale, and Maricopa County. For the most part, Valley Metro and its member agencies utilize service providers for operations of bus, light rail and paratransit services. The cities of Glendale, Scottsdale, Peoria, and Phoenix contract some of their service directly to service providers.

The regional transit system has 61 local bus routes, 15 key local bus routes, 1 limited stop peak and 2 limited stop all-day routes, 20 Express/RAPID routes,18 community circulator routes, one rural connector route, and one light rail system for a total of 103 regional routes. Valley Metro provides Dial-a-Ride service for seniors and persons with disabilities, as well as ADA paratransit service for those who are unable to use fixed route bus service.

Valley Metro and the region supports the goal of the U.S. Department of Transportation (USDOT) limited English proficient (LEP) guidance to provide meaningful access to its services by LEP persons. The Federal Transit Administration (FTA) notes that transit agencies that provide language assistance to LEP persons in a competent and effective manner will help ensure that their services are safe, reliable, convenient, and accessible to those persons. These efforts may attract riders who would otherwise be excluded from using the service because of language barriers and, ideally, will encourage riders to continue using the system after they are proficient in English and/or have more transportation options.

1.1 Regulatory Guidance

Title VI of the Civil Rights Act of 1964, provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity that receives federal financial assistance.

Executive Order 13166, "Improving Access to Services for Persons with Limited English Proficiency," issued on August 11, 2000, directs each federal agency to publish guidance for its respective recipients in order to assist with its obligations to LEP persons under Title VI. The Executive Order states that recipients must take reasonable steps to ensure meaningful access to their programs and activities by LEP persons. Providing English-

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only services may constitute national origin discrimination in violation of Title VI and its implementing regulations.

The FTA Circular 4702.1B, "Title VI Requirements and Guidelines for Federal Transit Administration Recipients", issued in October 2012 reiterates this requirement. Chapter III states that — FTA recipients must take responsible steps to ensure meaningful access to the benefits, services, information, and other important portions of their programs and activities for individuals who are Limited English Proficient (page III-6)."

In the Phoenix Metropolitan Area, there are over seventy different languages identified in households where English is not the predominate language. Using the "Four Factor Analysis" prescribed by the FTA, this plan was developed to ensure that all transit providers effectively communicate with all users of the public transportation agency's services provided.

1.2 Four Factor Analysis

The FTA Circular 4702.1B identifies four factors that recipients of federal funds should follow when determining what reasonable steps should be taken to ensure meaningful access for LEP persons.

The four factor analysis involved the following:

1. Identify the number or proportion of LEP persons eligible to be served or likely to be encountered with transit service.
2. Determine the frequency with which LEP individuals come in contact with transit service.
3. Determine the nature and importance of transit service provided to LEP individuals.
4. Assess the resources available to the recipient for LEP outreach, as well as costs associated with that outreach.

This document describes Valley Metro's four-factor analysis and summarizes its LEP efforts, including staff training, followed by a description of how the plan will be monitored and updated.

2.0 LIMITED ENGLISH PROFICIENT POPULATION (FACTOR 1)

The Factor 1 analysis assessed the number and proportion of persons with limited English speaking proficiency likely to be encountered within the service area, which is defined as a one-half mile radial buffer around all fixed route services. The LEP population is those individuals who reported to the Census Bureau that they speak English "less than very well."

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2.1 Evaluation Methods and Data Sources

In accordance with the FTA's policy guidance, the initial step for providing meaningful access to services for LEP persons and maintaining an effective LEP program is to identify LEP populations in the service area and their language characteristics through an analysis of available data. Determining the presence of LEP populations in the Valley Metro service area was completed through an analysis of several data sources, including:

- U.S. Census Bureau, Census 2000
- U.S. Census Bureau, 2013 American Community Survey (ACS) 5-Year Sample
- U.S. Census Bureau, 2016 American Community Survey (ACS) 5-year Sample

The U.S Decennial Census 2010 data was not used, as the 2010 Census did not include language specific information on the census forms. The Census 2000 data provides some general information about language groups that is included below; though recognized to be 16 years old. Notably the demographic landscape has transformed since 2000, though this dataset provides a historical comparison and additional insight given the long form of Census 2000 provided more detailed sampling for population characteristics like language proficiency as compared to Census 2010 and the ACS, which is more of a random sample.

2.2 LEP Population Identification

FTA describes LEP persons as having a limited ability to read, write, speak, or understand English. For this LEP analysis, those who reported to the Census Bureau that they speak English "less than very well" were used to tabulate the LEP population for the transit service area.

Census 2000

U.S. Decennial Census 2000 provides information about English language proficiency within the Valley Metro service area. The census provides information on languages; recognizably this data is 16 years old and may not reflect the current state of the region. These data are available at the census block group and census tract level. There are 618 census tracts with one-half mile of fixed transit service. Figure 1 depicts the 2018 census tracts within Maricopa County. Census tracts encapsulated within the one-quarter mile buffer are also included in the estimates.

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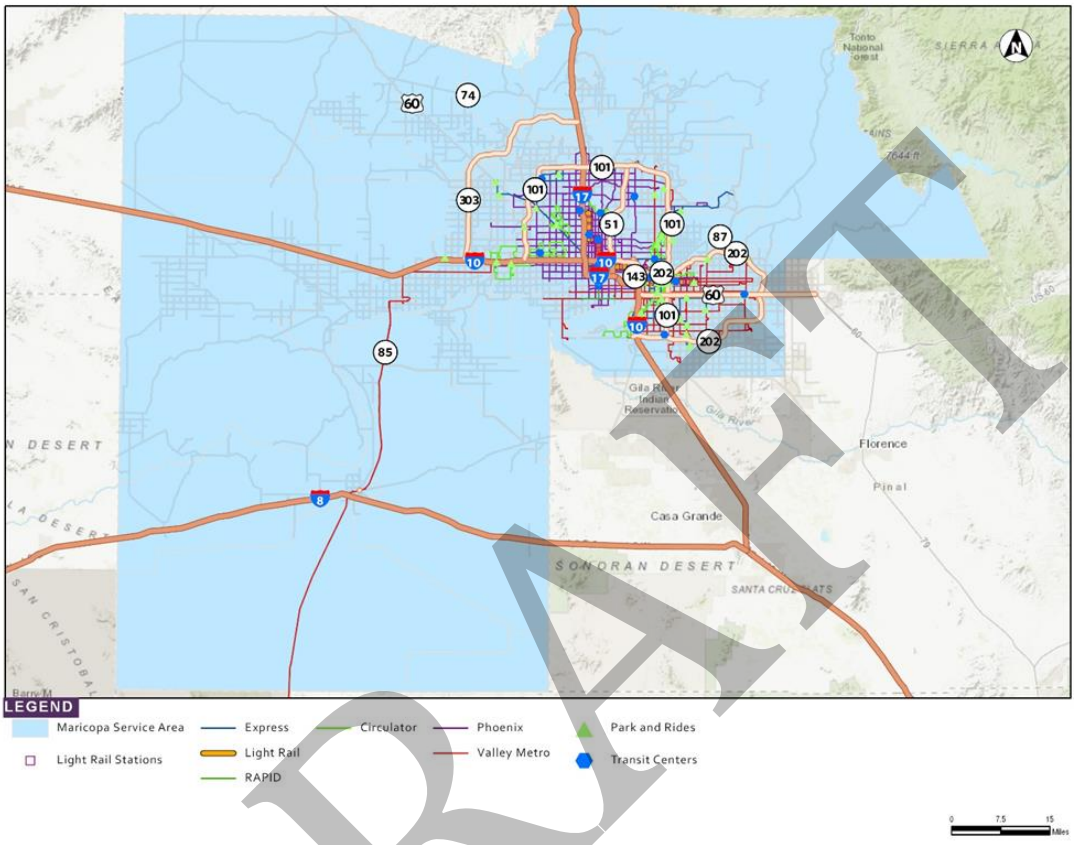
Figure 1: 2018 Maricopa County and Fixed Route Transit Service



The Census 2000 data include the number of persons ages 5 and above who self-identified their ability to speak English as "very well", "well", "not well", and "not at all". Table 1 shows English proficiency for the County and for Valley Metro's service area using the Census 2000 data. The table shows that 12.1 percent of the population age 5 and over within the service area reported speaking English less than very well and is considered the overall LEP population. The census tracts within one-half mile of fixed route service have slightly higher population of LEP than Maricopa County.

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Table 1: 2000 Census Data by Location

County or Area	Total Population Age 5 and Over	Speaks English Only	Speaks English		Percentage Less than Very Well
			Very Well	Less than Very Well	
Maricopa County	2,832,694	2,148,696	355,963	328,035	11.6%
Census Tracts within ½ -mile fixed routes	2,651,705	1,986,112	344,003	321,590	12.1%

Table 2 displays the data on English language proficiency for the census tracts within one-quarter mile around the fixed route service population ages 5 years and above by the linguistic categories identified by the U.S. Census Bureau, which include Spanish, Indo-European, Asian or Pacific Islander, and All Other Languages. In 2000, the population self-identified as speaking English less than "Very Well" was predominately the Spanish language group, encompassing 10.4 percent of the total population ages 5 years and over. Indo-European, Asian or Pacific Islander, and All Other Languages groups comprised 1.7 percent of the population. Of all those speaking English less than very well, the Spanish group comprises 86.0 percent of the total population over age five with limited English proficiency.

These numbers remain mostly consistent through the 2000s. In 2013 and 2016, the number of people that speak English less than "Very Well" dropped from 12.1 percent to about 10 percent (Table 4), however Spanish speakers continue to be the largest group in Maricopa County that self-identifies as speaking English less than "Very Well." Indo-European, Asian or Pacific Islander, and All Other Languages maintained similar percentages in comparison to the 2000 census data.

Table 2: 2000 Census Data by Language Category

Language Category	Total Population Age 5 and Over	Speaks English				Percentage Less than Very Well
		Very Well	Well	Not Well	Not At All	
Total	2,651,705	344,003	133,047	113,289	75,254	12.1%
English	1,986,112	-	-	-	-	0.0%
Spanish	528,613	252,587	103,991	99,549	72,486	10.4%
Indo-European	66,605	47,582	12,276	5,667	1,080	0.7%
Asian or Pacific Islander	44,109	24,273	12,210	6,372	1,254	0.7%
All Other Languages	26,266	19,561	4,570	1,701	434	0.3%

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The Census 2000 data also provide information on linguistically isolated households. "A linguistically isolated household is one in which no member 14 years old and over (1) speaks only English and (2) speaks a non-English language and speaks English 'very well.' In other words, all members 14 years old and over have at least some difficulty with English" (Census 2000). In total, the Census 2000 Summary File 3 data identified 1,048,128 households. The entire membership of a linguistically isolated household would be considered LEP. Table 3 details those data for linguistically and non-linguistically isolated households by language category.

Table 3: 2000 Census Data by Linguistically Isolated Households

Language Category	Total Households	Isolated Households	Non-isolated Households	Percentage Isolated Households
Census Tracts 1/2 mile fixed routes	1,053,667	62,471	201,748	5.9%
English	788,723	-	-	-
Spanish	190,507	51,213	139,294	4.9%
Indo-European	40,883	5,161	35,498	0.5%
Asian or Pacific Islander	20,853	4,744	16,109	0.5%
All Other Languages	12,701	1,405	11,296	0.1%

Within the fixed route transit area 5.9 percent of households are considered linguistically isolated. Again, these are predominately Spanish households making up 4.9 percent of the total. Remaining languages comprise 1.1 percent of households that are classified as linguistically isolated.

Figure 2 shows a map depicting the concentrations of linguistically isolated households in census tracts within 0.5-mile of fixed route service. Most areas throughout the region are mixed, though there are a few pockets of Census blocks that have concentrations of linguistically isolated households, thus identified as persons with limited English proficiency.

American Community Survey

The American Community Survey (ACS) is a continuous nationwide survey conducted monthly by the U.S. Census Bureau to produce annually updated estimates for the same small area (census tracts and block groups) formerly surveyed via the decennial census long-form survey. It is intended to measure changing socioeconomic characteristics and conditions of the population on a recurring basis. It is important to note that the ACS does not provide official counts of the population between each decennial census, but instead provides weighted population estimates. This analysis uses ACS data from 2013 and 2016 to show changes over time, especially since the decennial 2010 census did not provide this information.

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Figure 2: Census Tracts with Linguistically Isolated Households

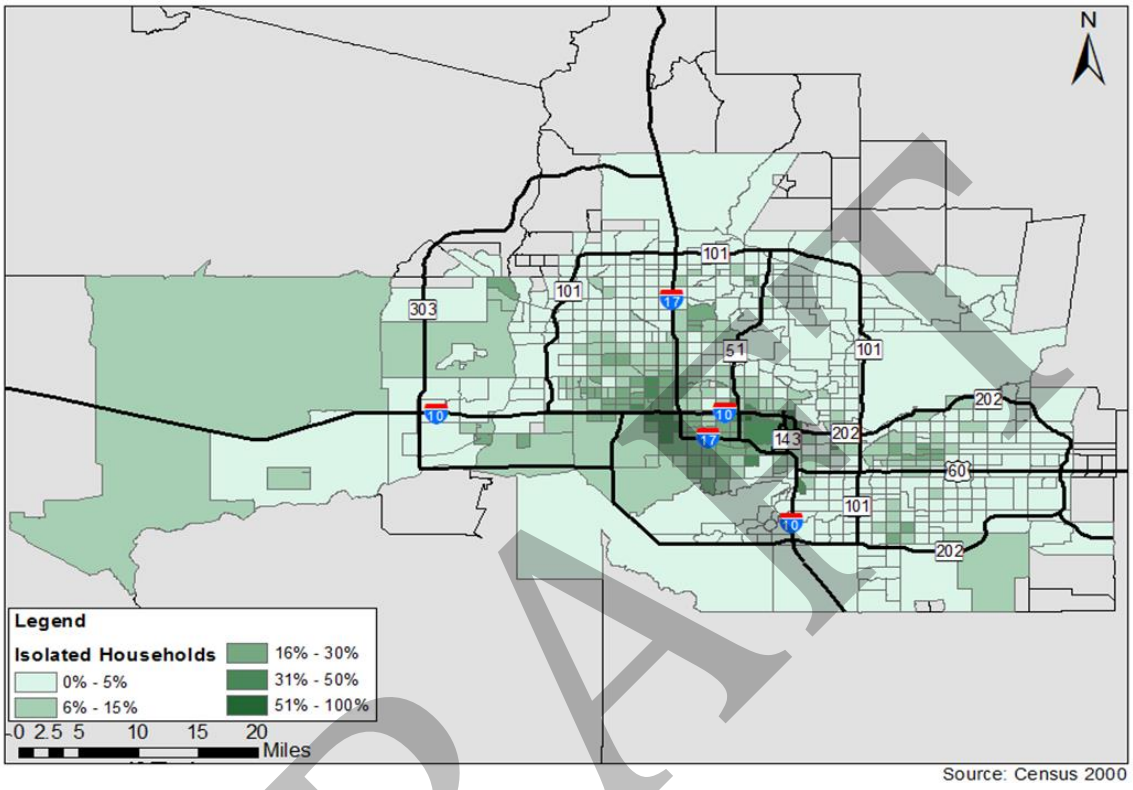

Figure 3 shows the ACS 2013 census tracts within the 0.5-mile buffer of transit routes. Census tracts encapsulated within this area are included in the estimates though they may not be within a 0.5-mile of a fixed route.

Table 4 shows English proficiency for the County and for Valley Metro's service area using the ACS 2013 and 2016 data. The ACS 2013 data estimates the population age 5 years and older within the service area to be 3,051,428 with 340,076, or 11.1 percent, of the population is LEP. The ACS 2016 data estimate the population age 5 years and older within the service area to be 3,154,617 with 330,125, or 10.5 percent, of the population is LEP. The census tracts within one-half mile of fixed route service have slightly higher population of LEP than Maricopa County.

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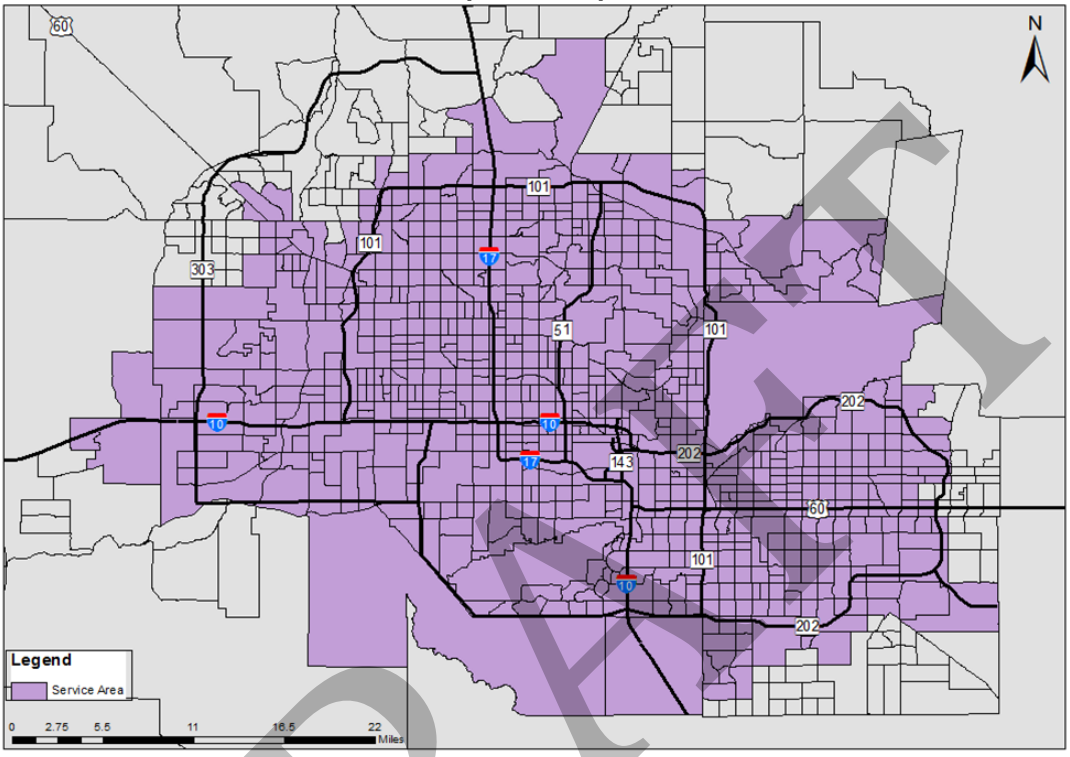
Figure 3: 2015 Census Tracts within One-Quarter Mile of Fixed Route Service (ACS 2016)



Source: ACS 2013

Table 4: ACS 2013 and 2016 Data by Location

County or Area	Total Population Age 5 and Over	Speaks English Only	Speaks English		Percentage Less than Very Well
			Very Well	Less than Very Well	
2013 ACS					
Maricopa County	3,610,510	2,660,946	589,679	359,884	10.0%
Census Tracts 1/2-mile fixed routes	3,051,428	2,171,136	540,216	340,076	11.1%
2016 ACS					
Maricopa County	3,812,399	2,804,227	646,236	354,052	9.29%
Census Tracts 1/2-mile fixed routes	3,154,617	2,229,062	595,430	330,125	10.46%

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Table 5 displays the data on English language proficiency for the census tracts within the one-quarter mile around the fixed route service population ages 5 years and above by the linguistic categories identified by the U.S. Census Bureau, which include Spanish, Indo-European, Asian or Pacific Islander, and All Other Languages. Predominately the population self-identified as speaking English less than "Very Well" is of Spanish language group, encompassing 9.1 percent (2013 ACS data) and 8.3 percent (2016 ACS data) of the total population ages 5 years and over. Indo-European, Asian or Pacific Islander, and All Other Languages groups comprised 2.1 percent of the population for both the 2013 and 2016 ACS data. Of all those speaking English less than very well, the Spanish group comprises 81.0 percent (2013 ACS) and 79.0 (2016 ACS) of the total population percent over age five with limited English proficiency.

Table 5: 2013 and 2016 ACS Census Data by Language Category

Language Category	Total Population Age 5 and Over	Speaks English				Percentage Less than Very Well
		Very Well	Well	Not Well	Not At All	
2013						
Total	3,002,765	536,151	140,541	126,210	71,269	11.2%
English	2,128,594	-	-	-	-	0.0%
Spanish	687,532	413,750	102,250	106,330	65,202	9.1%
Indo-European	75,146	56,623	12,386	5,048	1,089	0.6%
Asian or Pacific Islander	73,402	40,115	18,746	10,946	3,595	1.1%
All Other Languages	38,091	25,663	7,159	3,886	1,383	0.4%
2016						
Total	3,154,617	595,430	134,971	117,834	77,320	10.4%
English	2,229,062	-	-	-	-	0.0%
Spanish	725,756	463,540	94,718	97,718	69,780	8.3%
Indo-European	74,471	55,554	12,484	4,611	1,822	0.6%
Asian or Pacific Islander	81,683	46,873	19,589	11,272	3,949	1.1%
All Other Languages	43,645	29,463	8,180	4,233	1,769	0.4%

The 2016 ACS data also provide information on linguistically isolated households. "A linguistically isolated household is one in which no member 14 years old and over (1) speaks only English and (2) speaks a non-English language and speaks English 'very well.' In other words, all members 14 years old and over have at least some difficulty with English" (ACS 2016). In total, the 2016 ACS data identified 1,380,916 households. The entire membership of a linguistically isolated household would be considered LEP. Table 6 details those data for linguistically and non-linguistically isolated households by language category.

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Table 6: 2016 ACS Data by Linguistically Isolated Households

Language Category	Total Households	Isolated Households	Non-isolated Households	Percentage Isolated Households
Census Tracts 1/2 mile fixed routes	1,380,916	63,166	1,317,750	4.6%
English		-	-	-
Spanish	251,862	47,618	204,244	3.4%
Indo-European	40,663	4,417	32,917	0.3%
Asian or Pacific Islander	34,811	7,746	27,065	0.6%
All Other Languages*		3,385		

*The ACS 2016 Data did not provide the number of total households for linguistically isolated households

The 2013 ACS data show 19 languages or language groups with 1,000 or more LEP persons and the 2016 ACS data show 12 languages or language groups with 1,000 or more LEP persons. However, only one LEP population exceeds 5 percent of the total population of persons eligible to be served or likely encountered. Table 7 shows the populations that meet either of these thresholds using ACS 2013 population by language and ability, sorted by percentage of LEP population.

Within one-half mile of fixed route service, the majority of the 2013 LEP population is the Spanish speaking population; this is the only language group to exceed 5 percent of the LEP population. The Spanish LEP population consists of 275,370 persons within the service area. The Chinese and Vietnamese speaking population followed with 2.65 percent and 2.76 percent respectively, both were approximately 9,000 persons. There are 4,908 Arabic speaking LEP persons or 1.44 percent of the LEP population. The fifth largest LEP population is Tagalog consisting of 4,114 people, or 1.21% of the LEP population within the service area.

The 2016 LEP population is also the Spanish speaking population that consists of 262,216 persons (77 percent) within the service area. The Chinese and Other Indo-European speaking population followed with 3.0 percent and 2.97 percent respectively, both were approximately 10,000 persons. There are 9,287 Vietnamese speaking LEP persons or 2.74 percent of the LEP population. The fifth largest LEP population is Other Asian Pacific Island consisting of 8,210 people, or 2.43 percent of the LEP population within the service area.

The ACS 2016 LEP populations within the service area are very similar to the 2013 ACS LEP populations.

Figure 4 shows a map depicting the concentrations of population speaking English Less than Very Well throughout the service area. Most areas throughout the region are mixed, though there are a few pockets of Census blocks that have concentrations of persons with limited English proficiency.

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Table 7: ACS Data by Language within One-Half Mile of Fixed Route Service

Language	Speak English		Total Population	Percentage of Language LEP of Total LEP Population
	Less Than Very Well	Very Well		
ACS 2013				
All Languages	340,076	-	-	100%
Spanish	275,370	416,599	691,969	81.0%
Chinese	9,005	8,305	17,310	2.65%
Vietnamese	9,391	5,669	15,060	2.76%
Arabic	4,908	7,552	12,460	1.44%
Tagalog	4,114	8,918	13,032	1.21%
Other Asian	3,549	7,208	10,757	1.04%
African	3,301	4,485	7,786	0.97%
Korean	3,105	3,568	6,673	0.91%
Serbo-Croatian	2,833	4,177	7,010	0.83%
Other Languages	2,227	1,844	4,071	0.65%
Other Indo European	2,132	3,494	5,636	0.63%
Other Indic	1,894	3,989	5,883	0.56%
French	1,788	7,299	9,087	0.53%
Persian	1,788	2,821	4,609	0.53%
Other Pacific Island	1,278	3,037	4,315	0.38%
Russian	1,245	3,017	4,262	0.37%
Japanese	1,236	2,474	3,710	0.36%
Navajo	1,183	7,348	8,531	0.35%
German	1,199	9,624	10,823	0.35%
ACS 2016				
All Languages	338,335	-	-	100%
Spanish	262,216	463,540	725,756	77.50%
Chinese (includes Mandarin and Cantonese)	10,165	9,666	19,831	3.00%
Vietnamese	9,287	6,665	15,952	2.74%
Arabic	6,283	10,086	16,369	1.86%
Tagalog (includes Filipino)	4,512	9,750	14,262	1.33%
Korean	2,636	3,094	5,730	0.78%
Other Languages	7,899	19,377	27,276	2.33%
Other Indo European	10,057	27,339	37,396	2.97%
French, Haitian, or Cajun	2,105	6,999	9,104	0.62%
Other Asian Pacific Island	8,210	17,698	25,908	2.43%
Russian, Polish, or Other Slavic	5,559	11,443	17,002	1.64%
German or Other West Germanic	1,196	9,773	10,969	0.35%

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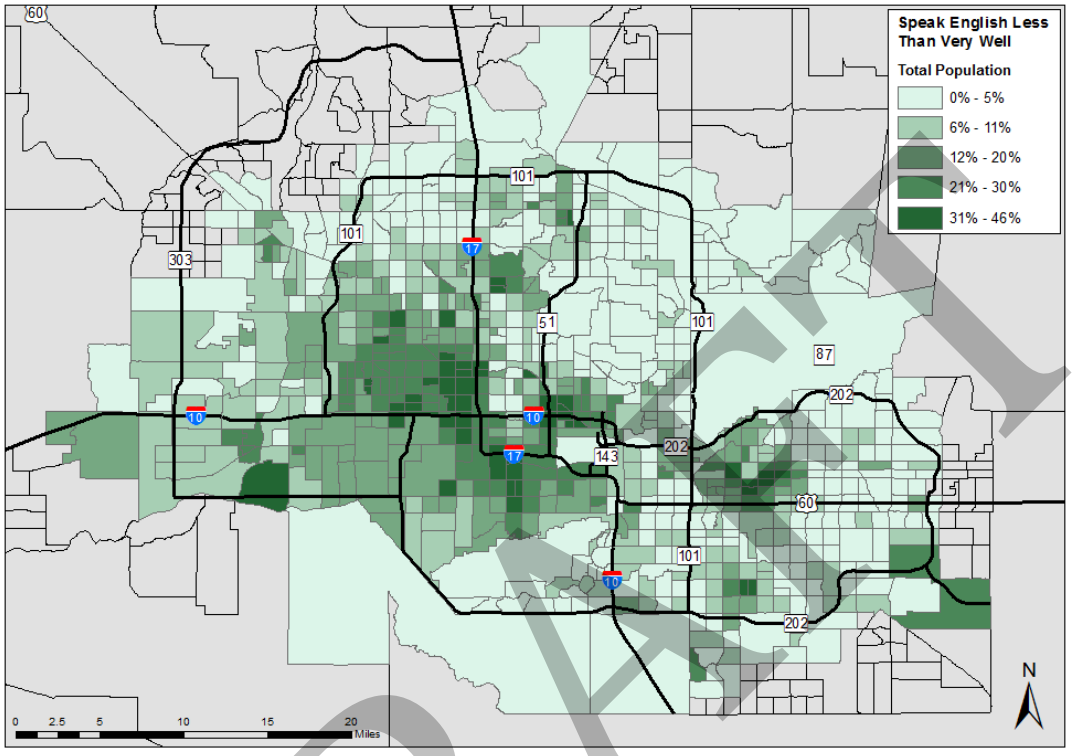
Figure 4: Population Speaking English "Less than Very Well"



3.0 FREQUENCY OF CONTACT WITH LIMITED ENGLISH PROFICIENT POPULATION (FACTOR 2)

The first step of the four-factor LEP needs assessment revealed that the largest language group was overwhelmingly Spanish; followed by Chinese, Vietnamese, Arabic, and Tagalog. Factor 2 is intended to assess the frequency with which LEP persons interact with Valley Metro programs, activities, or services. The USDOT "Policy Guidance Concerning Recipients 'Responsibilities to Limited English Proficient (LEP) Person" (USDOT 2005) advises that:

> *Recipients should assess, as accurately as possible, the frequency with which they have or should have contact with LEP individuals from different language groups seeking assistance, as <u>the more frequent the contact, the more likely enhanced language services will be needed</u> (emphasis added). The steps that are reasonable for a recipient that serves an LEP person on a one-time basis will be very different than those expected from a recipient that serves LEP persons daily.*

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The frequency of use was evaluated by assessing current resources, available data, and a short survey of transit employees.

3.1 Evaluation Methods and Data Sources

In an effort to determine the frequency that LEP persons interact with the agency, both quantitative and qualitative methods were used to analyze access to services. Anecdotal information regarding interactions with LEP persons, garnered through conversations with Valley Metro employees is also included in this section. More structured analysis is included using several sources of information:

- Transit Employee Survey
- Customer Service Interactive Voice Response (IVR) Call Log
- Transit Education Program
- Valley Metro Website Translation Data

Together these sources provide a picture of the interaction of LEP persons with programs, activities, or services provided by the agency.

3.2 Frequency of Contact Analyses

With about a quarter of the region speaking more than only English, Valley Metro recognizes the value of providing convenient and efficient information to transit riders. Understanding how often LEP persons are utilizing services will assist in serving customers better in the future with quality services, programs, and activities.

Transit Employee Survey

An employee survey was performed in an effort to determine how often those employees in contact with transit riders regularly encounter LEP persons. During late June-July 2018, a voluntary survey of customer service and transit employees was conducted regarding the interaction with LEP persons and languages spoken. A copy of the survey instrument can be found as Appendix B. The Valley Metro Customer Service Representatives provide passenger assistance most commonly through email, but also via the phone. In addition, there are several Customer Service Representatives that are dedicated for fare sales, transit information, or are stationed at transit passenger facilities[1] to provide assistance to passengers. Employees surveyed were of one of the following locations:

- Customer Service Representatives and public-facing Mobility Center Staff
- Central Station Transit Center
- Ed Pastor Transit Center
- Metrocenter Transit Center

[1] Facilities operated by the City of Phoenix or the City of Tempe

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- Sunnyslope Transit Center
- Tempe Transportation Center

In total 33 respondents provided information about their experiences. Approximately 85% of those surveyed were employed at the Mobility and Customer Service Center.

When asked if representatives have had any requests for materials in another language, 70% responded yes they had encountered a request; see Figure 5. Of these, most interpretation or translation requests were for Spanish.

By cross-referencing the locations of respondents with responses that language assistance had been requested, all but one location had received requests: only Sunnyslope Transit Center reported having no foreign language encounters.

Languages requested were predominately Spanish (88%) followed by French (8%) and Russian (4%). See Figure 6 for a full breakdown of the languages requested.

Figure 5: Requests for Information or Materials in Another Language

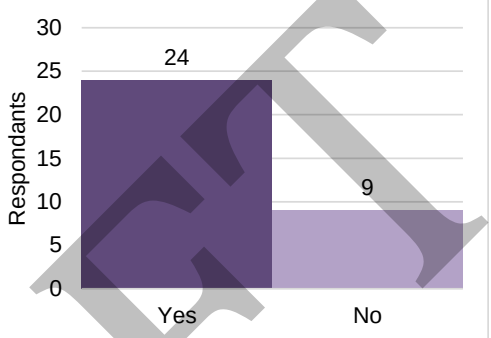
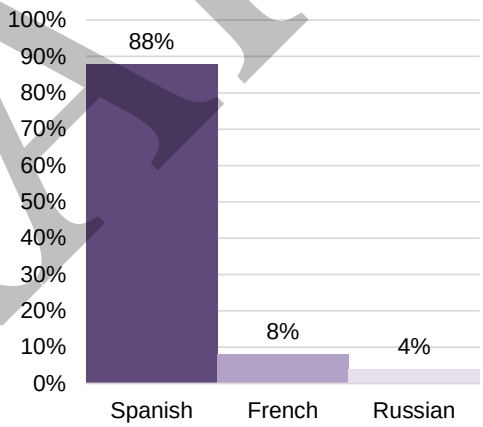


Figure 6: Requested Languages



These responses were categorized appropriately and cross-referenced with the language requested. See Figure 7 for a comparison. Spanish was much more frequently requested than any other language. Additionally, languages other than Spanish were requested at a less frequent rate.

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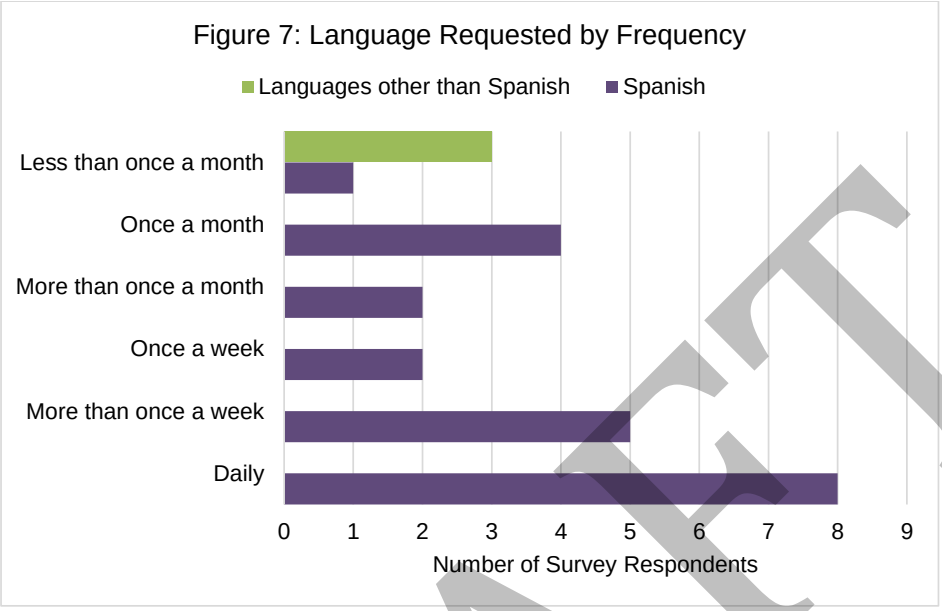

This survey helped support that there are many languages encountered by transit professionals, yet Spanish is the most common and most frequent of those encountered.

Customer Service Interactive Voice Response (IVR) Call Log

The Customer Service Center updated the automated phone system mid-2014[2] to establish the Interactive Voice Response (IVR) feature. With this expansion, the new system is able to provide a log to which line callers have requested to be transferred. Available are six topic categories, each in English and Spanish for twelve options total. The topics available include:

- Americans with Disabilities Act (ADA)
- Customer Relations (CR)
- Light Rail
- Lost and Found
- Transit Information (TI)

This system allows Spanish-speaking callers to be automatically transferred to a bilingual representative reducing the time it takes to be served in the preferred language. Beyond being more convenient and helpful, this system also is more efficient by reducing the likelihood callers may be redirected to a bilingual representative. Currently, 13 bilingual customer service representatives are employed by Valley Metro. The new phone system prioritizes selection of Spanish calls received. Acknowledging that this is a truncated data

[2] Data available July 2014 through April 2015

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set, Table 7 below shows the distribution of calls by option selected, followed by the sum of calls by language.

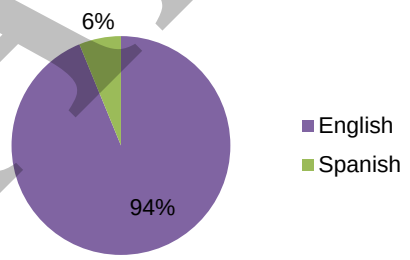
Table 7: Customer Service Call Log

	Total Calls	% of Total Calls
ADA-English	13,840	1.26%
ADA-Spanish	139	0.01%
CR-English	75,874	6.90%
CR-Spanish	371	0.03%
Light Rail-English	184	0.02%
Light Rail-Spanish	5	0.00%
Lost Found-English	5,073	0.46%
Lost Found-Spanish	22	0.00%
TI-English	936,408	85.16%
TI-Spanish	67,630	6.15%
English	1,031,379	93.8%
Spanish	68,167	6.2%
Total Calls	1,099,546	100.00%

Figure 8 shows a pie chart of the calls by language. Approximately 94% of calls were for English and 6% of calls were for Spanish. At the time of this report, 38 customer service representatives were currently on staff; of these, twelve are bilingual (32%).

When evaluating the customer service call logs, the bulk of calls received are through the English phone lines with a small portion (6%) selecting a Spanish option.

Figure 8: Customer Service Calls by Language



Transit Education Program

Valley Metro has a Transit Education program that presents information to various groups to teach about public transit, benefits of transit, and how to use the system. Staff members visit schools, businesses, social service agencies and present to new residents and refugee groups, senior citizens and persons with disabilities. Additionally, transit information and assistance is provided at community or special events including environmental fairs, transportation or vehicle days, career days, and more. This team also conducts general presentations by request to any group who wants to learn more about Valley Metro services. For more-comprehensive training, monthly sessions are held at Ability360 on the third Wednesday of the month. These sessions include a presentation, bus demo and ride and a light rail ride. Participants are issued an all-day pass for this mobility training.

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Presentations are made to various refugee groups. Due to the varied backgrounds of the participants, the hosting organizations generally provide necessary interpreters. Valley Metro staff members have developed training materials that are mostly images to help bridge the language issues. The many Spanish speaking passengers are accommodated as much of the transit information is available in Spanish.

Website Translation

Apart from accessing information via transit employees whether by phone, email, in person or another method, many customers utilize the www.valleymetro.org website for information. During this time the website was equipped with the Google Translate feature, which allows translation into 90 languages. Users have translated the Valley Metro website into 36 different languages using this feature. Approximately 99% of sessions were utilizing the default English setting. The remaining 1% was comprised of 35 other languages. Table 8 provides an itemization of the languages translated and the percentage of sessions. Note that only languages comprising at least 0.01% of total sessions are included below; a full table of entries is available in Appendix C.

Table 8: Website Sessions by Language[3]

Language	Number of Sessions	Percent of Total Sessions
English	8,289,256	99.23%
Spanish	35,088	0.42%
Chinese	8,807	0.11%
Japanese	5,000	0.06%
French	3,741	0.04%
German	2,590	0.03%
Korean	1,561	0.02%
Russian	1,160	0.01%
Italian	940	0.01%
Portuguese	829	0.01%
Arabic	653	0.01%
Dutch	651	0.01%

Once again, Spanish was overwhelmingly the most utilized language with the website translation service comprising 0.42% of sessions, followed by Chinese (0.11%), Japanese (0.06%), French (0.04%), and German (0.03%). See Figure 9 below for a chart of the number of translated sessions by language.

[3] Valley Metro. (2015). Language [Data file]. Available from http://www.google.com/analytics/ce/mws/

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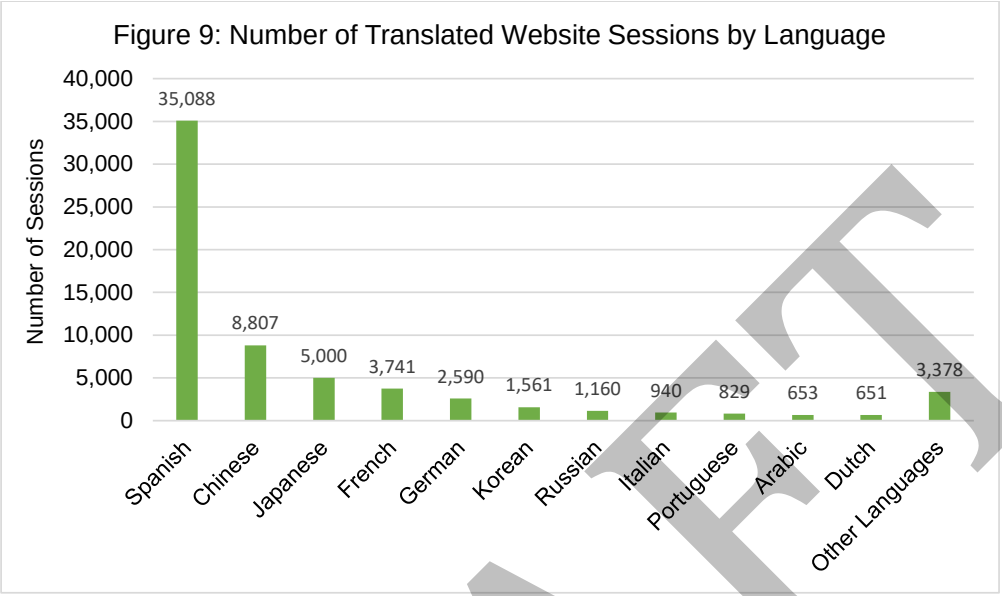

The website was translated to an additional 25 other languages that each comprises less than 0.01% of the sessions; collectively these viewings attribute to 0.04% of all sessions. These languages include:

- Bulgarian
- Catalan
- Croatian
- Czech
- Danish
- Farsi
- Finnish
- Greek
- Hebrew
- Hungarian
- Indonesian
- Latin
- Norwegian
- Polish
- Romanian
- Serbian
- Slovak
- Swedish
- Tagalog
- Thai
- Tonga
- Turkish
- Ukrainian
- Vietnamese

Persons around the region utilize the website to gather information in languages from around the world using the Google Translate feature. The majority of translated sessions are for the Spanish language (0.42%).

Furthermore, many documents uploaded to Valley Metro's website are translated into Spanish since they are disseminated as paper materials to the public. Individuals may utilize these documents without translating the website into Spanish, but rather use the Google Translate feature. Some of these documents include project updates, route maps and schedules, instructions and applications for a Reduced Fair ID, service change information, policies, brochures, and forms.

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Conclusion

The Factor 2 analysis revealed that there is regular contact between the LEP population and Valley Metro personnel. The Transit Employee Survey conducted revealed that 70% of all respondents had encountered an LEP person; of those who had encountered a request for assistance in another language, 88% of respondents reported requests for Spanish. The Customer Service Call Log, though limited, showed that a mere 6% of customers utilized one of the six Spanish options. Information from the Transit Education team qualitatively identified Spanish as the main language group. Finally, translation data from the Valley Metro website indicated 0.77%% of sessions were translated; approximately half of which were translated to Spanish. The website was translated to 36 different languages. Overall, there is broad diversity within the Phoenix region that accesses regional transit services, however; these are predominately English and Spanish speaking individuals.

4.0 NATURE AND IMPORTANCE OF THE PROGRAM, ACTIVITY OR SERVICE PROIVDED (FACTOR 3)

The third step in the four-factor LEP needs assessment is an evaluation of the importance of Valley Metro services to persons with limited English proficiency. The first component of the Factor 3 analysis is to identify critical services. Next, input received from community organizations was used to identify ways to improve these services for LEP populations. The U.S. Department of Transportation (USDOT) "Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Persons" (USDOT 2005) advises that:

> *The more important the activity, information, service, or program, or the greater the possible consequences of the contact to the LEP individuals, the more likely language services are needed. The obligations to communicate rights to an LEP person who needs public transportation differ, for example, from those to provide recreational programming. A recipient needs to determine whether denial or delay of access to services or information could have serious or even life-threatening implications for the LEP individual . . . providing public transportation access to LEP persons is crucial. An LEP person's inability to utilize effectively public transportation may adversely affect his or her ability to obtain health care, education, or access to employment.*

With assistance from Valley Metro's Community Relations and Marketing departments, a list of services provided was prepared and prioritized. The input from community organizations and LEP persons were incorporated to ensure views of the importance of services provided are adequately prioritized.

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4.1 Services Provided

In cooperation with Valley Metro's Communications and Operations departments, services currently provided to LEP persons were queried. Typically, materials in both English and Spanish are available on both bus and light rail services. Below is a list of available materials and services in Spanish that includes next bus and light rail specific services:

- Press Releases
- Public materials; including, but not limited to:
  - Route Scout (announcements on buses and light rail)
  - Ride Guide and Destinations Guide
  - Service changes materials
  - Transit book
  - Website
  - Project updates
  - Title VI forms
  - Large special events materials (e.g. Super Bowl public materials)
- Direct mailers or door hangers for targeted outreach
- Ticket vending machines (Spanish and Braille)
- Bilingual customer service staff
- Email List Serv Messages
- Bus specific services:
  - Car cards (on-board advertisements)
  - Bus signs (i.e. priority seating, caution signs, entry/exit, etc.)
  - Variable message sign that displays announcements on buses
- Light Rail specific services:
  - LRT vehicle signage including priority seating, manners, and other train information
  - VMS Announcements on vehicles and at stations
  - System maps and auxiliary information
  - Operator call boxes on trains
  - Emergency call box at stations
  - Safe place notices

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Critical Services

Public transit is a key means of mobility for persons with limited English proficiency. Of those services identified above, a subset of critical services was prioritized to ensure that those services imperative to utilize Valley Metro public transportation options are available to all users.

Basic trip information is available both printed and electronically in Spanish, including service hours, tickets, trip planning, airport and transit connections, parking, bicycles, and services for persons with disabilities. Also available in Spanish is information regarding how to utilize transit, manners, priority seating, caution signs, and exit locations on vehicles. Ticket vending is available in both Spanish and Braille. Emergency notification measures are also translated, including audio VMS[4] Announcements on vehicles (bus and rail), operator call boxes, emergency call boxes, and Safe Place notices.

Bilingual customer service representatives are available during regular call center hours. Representatives use the same procedures for comments and note that the inquiry was in Spanish so that a bilingual representative is assigned in any follow-up response if needed. Outside of customer service hours, the website is available for translation to most languages at any time. For public meetings and hearings, a Spanish translator is usually available; additional translators are available upon request or appropriate context. Typically, additional translation services requested are provided for American Sign Language through an on-call contract.

Community Outreach

Valley Metro conducted interviews with six community organizations that encounter various LEP populations. The organizations interviewed range from cultural adult centers to refugee services organizations.

Key findings from outreach effort:

- Public transportation is the main form of transportation to access jobs, medical appointments, social services, grocery shopping and school.
- Many of the organizations provide an orientation to transportation services and also provide free transit passes for employment searches.
- Two primary challenges with the public transportation system were voiced, which related to route location and schedule.
    - The schedule does not accommodate early morning or late night shifts.
    - The transit system does not travel to all locations, especially those on the outer reaches of the Phoenix metropolitan region.

[4] Variable message signs

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Community Organizations Interviews

In 2015 Valley Metro interviewed six community organizations to garner insight on the use and role of Valley Metro services to the LEP populations within the Phoenix Metropolitan region. These six organizations include:

- Catholic Charities
- Friendly House
- Refugee Focus
- Arizona Immigration Refugee Services (AIRS)
- Chinese Senior Center
- Hope VI

Organizations were identified to ensure that a wide variety of cultural and language groups were reached over large service areas. These organizations indicated that they serve populations speaking a broad range of languages, including Spanish, Arabic, Somali, Chinese, Burmese and French.

Participating agencies were asked a series of questions from the FTA handbook "Implementing the Department of Transportation's Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Persons" (FTA 2007b). Organizations interviewed expressed needs of LEP populations regarding language assistance including:

- **System Map Information:** LEP populations have expressed a difficulty in understanding and familiarizing themselves with system maps.
- **On-Board Messaging:** LEP populations have expressed hardship in reading and understanding on-board signage/message boards as well as driver instructions.
- **Transit Service Information:** LEP populations have expressed the desire for information, such as how to ride and fare payment information, be communicated in an understandable format. Symbols could be used to communicate messages to a wider audience. Also, offering orientation to these populations, through their respective agencies, would familiarize them with the transit system.

Valley Metro continues to make improvements in language assistance for the LEP population in the region in all areas including the three identified above.

5.0 CURRENT RESOURCES AVAILABLE AND THE COSTS TO PROVIDE LANGUAGE ASSISTANCE SERVICES (FACTOR 4)

The final step of the four-factor LEP analysis is an evaluation of the current and projected financial and personnel resources available to meet the current and future needs for

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language assistance. The first component of the Factor 4 analysis was to identify current language assistance measures and associated costs. The next step was to determine what additional services may be needed to provide meaningful access. The USDOT "Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Persons" (USDOT 2005) advises that:

> *A recipient's level of resources and the costs imposed may have an impact on the nature of the steps it should take in providing meaningful access for LEP persons. Smaller recipients with more limited budgets are not expected to provide the same level of language services as larger recipients with larger budgets. In addition, 'reasonable steps' may cease to be reasonable where the costs imposed substantially exceed the benefits.*

Valley Metro has a strong commitment to reducing the barriers encountered by LEP persons in accessing its services and benefits, to the extent resources are available. Valley Metro currently does not break down all cost expenditures related to providing language assistance. Valley Metro will evaluate how to consolidate its language assistance measures to deliver the most cost-effective services.

5.1 Current Measures and Costs

Costs incurred by Valley Metro for the language assistance measures currently being provided include:

- Translation of materials
- Printing, advertising, or other marketing costs
- Interpretation services
- Staff costs associated with Title VI efforts in adhering to language assistance measures

Typically, an amount is embedded into the project costs by activity (logged under printing or other direct expenses) for translation and production of any materials. Agency wide there is a standing on-call contract for any interpretation needs. Any production costs are included in printing and public meetings budgets. Furthermore, there are bilingual employees that provide intermittent language assistance needs as part of their other duties. Specifically, the Public Relations team has two employees (33% of the department staff) that are bilingual. These employees may be assigned to prepare press releases or media events with Spanish-speaking publications in addition to their typical duties. These soft costs are not tracked, though most of the formal interpretation services are contracted.

Interpreters are contracted for public meetings or hearings to ensure that any language assistance needs are met so that public relations staff can focus on facilitating the event.

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All hearings are staffed with interpreters while public meetings are staffed depending on the anticipated number of persons reached and upon request. Valley Metro's current contract for interpreters at public meetings allow for approximately $200 per meeting. Annually $5,000-$6,000 is spent for interpreters to staff meetings and public hearings for various projects and efforts. In addition, $800-$1,200 is spent annually for sign language interpreters at requested meetings and public hearings. Costs for translating and producing materials like meeting notices, display boards, news releases, and project update sheets are also budgeted annually; approximately $14,000 - $15,000. In total, approximately $20,000 - $25,000 is contracted out directly in support of language assistance services for interpreters, translation, and materials dependent on the projects and programs implemented each year.

Additional soft costs include other staff time utilized on an ad hoc or regular basis to provide translation or interpretive services. Over thirty percent of Public Relations and Customer Service Representatives are bilingual, servicing Spanish-speaking customers as well as English-speaking customers. Being bilingual is a preferred qualification when hiring customer service staff though not required. There are also bilingual employees that may assist on an informal, ad hoc basis to communicate with LEPs in other departments.

5.2 Cost-effective Practices

Valley Metro will continue to evaluate ways to improve the cost-effectiveness and the quality of its language services. Additional strategies for saving costs or improving quality may include developing internal and external language services, with the opportunity to coordinate across multiple agencies in the region. Current measures practiced to ensure services are cost effective include:

- bilingual staff trained to act as interpreters and translators
- shared customer service center and other information for combined translation and interpretation resources
- some standardized common documents with transit and other public agencies
- translated vital documents currently posted on <valleymetro.org>

Strategies for consolidating the regional language assistance measures to achieve efficiencies may include:

- creating a one-stop LEP information center for Valley Metro employees
- surveying Valley Metro staff to determine any additional existing multilingual resources
- conducting outreach to various community organizations to secure volunteers for translation and interpretation services that are currently contracted or completed in-house
- consolidating contract services for oral and written translation to secure the most cost-effective rates

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Valley Metro continues to use qualified translators and interpreters to uphold the quality of language assistance measures. Valley Metro strives to provide basic informational training for volunteer staff on its language assistance measures.

5.3 Additional Services and Budget Analysis

Valley Metro is committed to reducing the barriers encountered by LEP persons in accessing its services to the extent funding is available. While Valley Metro currently does break down contracted cost expenditures related to providing language assistance, expenditures of efforts for translation and interpretation completed in-house are less well documented. As part of the Language Assistance Plan, Valley Metro will better monitor efforts in the future. Valley Metro will further evaluate how to consolidate its language assistance measures to deliver the most cost-effective services.

The information received from community organizations provided some insight on additional services that may ease access for LEP persons to regional transit services. The summary above portrays more insight of the interviews conducted. Services requested were centered on service expansions that included increased frequencies and later services at night. However, these would be greater improvements for consideration and prioritization of the system rather than specific services for LEP persons. Therefore, they were excluded here and assigned to the general public process for service requests.

Other requests included using more symbols to depict messaging and system routes. Audio messaging is also shown using VMS[5] that could potentially show messaging in another language as well. The light rail system VMS currently shows messages in English and Spanish. Bus messaging is typically location data and in close proximity depending on stop locations. The feasibility and helpfulness of VMS translation should be evaluated.

As applicable, through the annual budget process, additional services requested or identified may be considered for implementation. In 2015, Valley Metro has shifted to a zero based budget that is approved by two appointed boards: Valley Metro Rail Board and the Valley Metro Regional Public Transportation Authority Board of Directors. Year by year the budget is developed as appropriate to the unique needs and demands of the agency at that point in time.

5.4 Projected Costs

Requests for added services include expanded symbols to understand how to use transit services, on-board messaging, and system map information. With a commitment to providing reasonable language assistance measures, Valley Metro will assess current symbolism used on vehicles, at station locations, and elsewhere to determine the sort of

[5] LINK stations, light rail stations and vehicles are equipped with VMS announcements; most fixed route vehicles are also equipped with VMS capabilities

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improvements that could be made so that the system is more easily understood visually. With expanded symbolism, it is expected that the need for enhancing the on-board messaging and system map information may be reduced. Furthermore, these could be incorporated into the regular updates of this information and signage. Biannually in coordination with the service changes, updated system maps are produced.

Other improvements would be considered after analyzing the staff costs, third party contract costs, and costs related to volunteer or community organization coordination. These would be evaluated in comparison with anticipated benefits to the LEP population. Other considerations may include operational issues and implementation time.

6.0 LANGUAGE ASSISTANCE MEASURES

Valley Metro is committed to full compliance with Title VI and Executive Order 13166 to provide meaningful access and reduce barriers to services and benefits for persons with limited English proficiency.

6.1 Current Language Assistance Measures

As discussed earlier in this Language Assistance Plan, Valley Metro currently provides both oral and written language assistance. Oral language assistance includes bilingual customer service representatives, speaking Spanish. Additionally, Spanish interpreters are available at public meetings; sign language and other language interpreters are available as requested. On vehicles and at stations, VMS announcements are also in Spanish.

Written Spanish language assistance includes signage, press releases, list serve messages, service change materials, Title VI complaint forms, policies, and procedures. Additional translation of some vital documents is provided, such as schedules, maps, ride and destination guides, route scouts, and more. Meeting notices and public input surveys at public meetings are translated. The website is equipped with the Google Translate feature, which allows translation into 5 languages (www.translate.google.com). Fare vending machines provide Spanish and Braille translations as well.

Notices to the public of language assistance measures are typically provided side-by - side an English version of the document. For example, Ride Guide documents are provided in both English and Spanish and are available together wherever disseminated. Where available, documents are commonly printed on both sides with an English version and a Spanish version on each side of the paper. When calling into the customer service line, the interactive voice response system will ask if Spanish is the preferred language automatically prior to being connected with a representative.

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6.2 Staff Training

Specific policies and procedures for interacting with LEP persons are not formally adopted on a standalone basis. These policies and procedures are in essence those for all customers and have been embedded into multiple documents (including the Title VI Plan, trainings, instructions, etc.).

Using the customer service center as an example, Spanish calls are assigned directly to a Spanish-speaking representative through the phone system. In the customer assistance system a note is made that the customer speaks Spanish so that if the query is not able to be responded to immediately, any response is assigned to another bilingual representative. This training is implanted into general customer assistance staff training to ensure cost effective practices and efficient use of training resources. Title VI of the Civil Rights Act of 1964 is distributed to new employees and where applicable, employees are expected to know how to file discrimination claims based on race, color, or national origin. Additionally, there are related trainings available including quarterly Civil Rights Workshops, training sessions for conducting complaint investigations according to federal guidelines and streamlining the complaint investigative process.

Training for employees who regularly encounter the public may also include:

- Type of language services available,
- How staff and/or LEP customers can obtain these services,
- How to respond to LEP callers,
- How to respond to correspondence from LEP customers,
- How to respond to LEP customers in person, and
- How to document LEP needs.

Valley Metro continues to consider opportunities to provide quality services for LEP persons throughout the service area.

6.3 Future Language Assistance Services

With the development of subsequent Language Assistance Plans, it is expected that through the monitoring, evaluation, and update process that additional services continue to be identified and considered for feasibility of implementation. Valley Metro strives to serve LEP populations adequately with an equal opportunity to use transportation options available. Section 7 provides more information about the monitoring and update process of this plan.

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7.0 MONITORING AND UPDATING THE LANGUAGE ASSISTANCE PLAN

Triennially Valley Metro will review, monitor, and update this LAP. Feedback from agency staff and community members will be accepted throughout the year at the email address: TitleVICoordinator@ValleyMetro.org. Additional community feedback may be elicited during the update process. Internal monitoring will be conducted using the template provided from the FTA handbook "Implementing the Department of Transportation's Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Persons" (FTA 2007b). Using this checklist periodically, stations, vehicles, customer service, community outreach, and public relations are monitored.

Using this information, changes may be made to the language assistance plan recognizing any cost implications and resources available. Depending on this evaluation, language assistance measures may be expanded, modified or eliminated based on their effectiveness.

As the transit service area is modified through service changes, the demographics served will be reviewed to ensure that those high concentrations of LEP persons are reflected accurately in an effort to provide language assistance measures to areas with expanded transit services.

Throughout the monitoring period, Valley Metro will continue to follow the recommendations and use the resources provided by Executive Order 13166, FTA Circular 4702.1B, the USDOT "Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Person" (USDOT 2005), and the FTA handbook "Implementing the Department of Transportation's Policy Guidance Concerning Recipients' Responsibilities to Limited English Proficient (LEP) Persons" (FTA 2007b). Valley Metro will be better able to apply the DOT LEP guidance's four-factor framework and will continue to determine an appropriate mix of language assistance in the preparation of language assistance implementation plans.

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APPENDIX A – FULL LIST OF LANGUAGES

ACS 2016 population by language and ability: cells shaded purple in this table meet either the 1,000 persons threshold or the 5% threshold of the total population of persons eligible to be served or likely encountered.

Language Category Group	Total Population	Percentage of Total LEP Population
All Languages Speaks English Less Than Very Well (LEP Population within Service Area)	791,547	-
Spanish	808,412	-
Spanish Speak English Very Well	528,695	-
Spanish Speak English Less Than Very Well	279,717	35.34%
French (Including Cajun)	10,704	-
French Speak English Very Well	8,109	-
French Speak English Less Than Very Well	2,595	0.33%
Haitian	357	-
Haitian Speak English Very Well	253	-
Haitian Speak English Less Than Very Well	104	0.0001%
Italian	4,565	-
Italian Speak English Very Well	3,541	-
Italian Speak English Less Than Very Well	1,024	0.13%
Portuguese	2,335	-
Portuguese Speak English Very Well	2,180	-
Portuguese Speak English Less Than Very Well	155	0.0001%
German	11,223	-
German Speak English Very Well	10,177	-
German Speak English Less Than Very Well	1,046	0.13%
Yiddish, Pennsylvania Dutch, or Other West Germanic	1,605	-
Yiddish Speak English Very Well	1,605	-
Yiddish Speak English Less Than Very Well	0	0.00%
Greek	1,140	-
Greek Speak English Very Well	1,052	-
Greek Speak English Less Than Very Well	88	0.0001%
Russian	3,153	-
Russian Speak English Very Well	2,578	-
Russian Speak English Less Than Very Well	575	0.0007%
Polish	5,665	-
Polish Speak English Very Well	4,083	-
Polish Speak English Less Than Very Well	1,582	0.19%
Serbo-Croatian	5,431	-
Serbo-Croatian Speak English Very Well	4,228	-
Serbo-Croatian Speak English Less Than Very Well	1,203	0.15%

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Ukrainian or Other Slavic	3,652	-
Other Slavic Speak English Very Well	2,860	-
Other Slavic Speak English Less Than Very Well	792	0.10%
Armenian	474	-
Armenian Speak English Very Well	209	-
Armenian Speak English Less Than Very Well	265	0.0003 %
Farsi or Dari	6,866	-
Persian Speak English Very Well	4,102	-
Persian Speak English Less Than Very Well	2,764	0.35%
Gujarati	3,044	-
Gujarati Speak English Very Well	2,366	-
Gujarati Speak English Less Than Very Well	678	0.0008 %
Hindi	10,858	-
Hindi Speak English Very Well	8,868	-
Hindi Speak English Less Than Very Well	1,990	0.25%
Urdu	2,026	-
Urdu Speak English Very Well	1,812	-
Urdu Speak English Less Than Very Well	214	0.0003 %
Nepali, Marathi, or Other Indic	3,675	-
Other Indic Speak English Very Well	2,405	-
Other Indic Speak English Less Than Very Well	1,270	0.16%
Punjabi	1,462	-
Punjabi Speak English Very Well	808	-
Punjabi Speak English Less Than Very Well	654	0.0008 %
Bengali	1623	-
Bengali Speak English Very Well	1022	-
Bengali Speak English Less Than Very Well	601	0.0008 %
Other Indo European	10,187	-
Other Indo European Speak English Very Well	6,915	-
Other Indo European Speak English Less Than Very Well	3,272	0.41%
Chinese	25,847	-
Chinese Speak English Very Well	12,518	-
Chinese Speak English Less Than Very Well	13,329	1.68%
Japanese	3,604	-
Japanese Speak English Very Well	2,677	-
Japanese Speak English Less Than Very Well	927	0.12%
Korean	6,412	-
Korean Speak English Very Well	3,160	-
Korean Speak English Less Than Very Well	3,252	0.90%
Vietnamese	18,703	-
Vietnamese Speak English Very Well	8,215	-
Vietnamese Speak English Less Than Very Well	10,488	1.33%
Khmer	1,559	-
Khmer Speak English Very Well	736	-

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Khmer Speak English Less Than Very Well	823	0.00%
Telugu	6,379	
Telugu Speak English Very Well	5,594	
Telugu Speak English Less Than Very Well	785	
Tamil	3,872	
Tamil Speak English Very Well	3,374	
Tamil Speak English Less Than Very Well	498	
Malayalam, Kannada, or other Dravidian languages	2,988	
Malayalam, Kannada, or other Dravidian languages Speak English Very Well	2,644	
Malayalam, Kannada, or other Dravidian languages Speak English Less Than Very Well	344	
Thai, Lao, or Other Tai-Kadai Languages	2,848	-
Thai, Lao, or Other Tai-Kadai Languages Speak English Very Well	1,893	-
Thai, Lao, or Other Tai-Kadai Languages Speak English Less Than Very Well	955	0.26%
Other Asian	3,838	-
Other Asian Speak English Very Well	2,308	-
Other Asian Speak English Less Than Very Well	1,530	0.09%
Tagalog (Including Filipino)	18,812	-
Tagalog (Including Filipino) Speak English Very Well	13,344	-
Tagalog (Including Filipino) Speak English Less Than Very Well	5,468	1.21%
Ilocano, Samoan, Hawaiian, or other Austronesian languages	6,677	-
Ilocano, Samoan, Hawaiian, or other Austronesian languages Speak English Very Well	5,377	-
Ilocano, Samoan, Hawaiian, or other Austronesian languages Speak English Less Than Very Well	1,300	0.38%
Navajo	11,895	-
Navajo Speak English Very Well	10,812	-
Navajo Speak English Less Than Very Well	1,083	0.36%
Other Native North American	4,099	-
Other Native North American Speak English Very Well	3,776	-
Other Native North American Speak English Less Than Very Well	323	0.11%
Yoruba, Twi, Igbo, or other languages of Western Africa	4,071	-
Yoruba, Twi, Igbo, or other languages of Western Africa Speak English Very Well	3,215	-
Yoruba, Twi, Igbo, or other languages of Western Africa Speak English Less Than Very Well	856	0.07%
Arabic	25,913	-
Arabic Speak English Very Well	15,535	-
Arabic Speak English Less Than Very Well	10,378	1.46%
Hebrew	1,925	-
Hebrew Speak English Very Well	1,612	-
Hebrew Speak English Less Than Very Well	313	0.08%
Amharic, Somali, or other Afro-Asiatic languages	7,343	-
Amharic, Somali, or other Afro-Asiatic languages Speak English Very Well	4,348	-
Amharic, Somali, or other Afro-Asiatic languages Speak English Less Than Very Well	2,995	0.98%
Swahili or other languages of Central, Eastern, and Southern Africa	6,764	
Swahili or other languages of Central, Eastern, and Southern Africa Speak English Very Well	3,180	

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Swahili or other languages of Central, Eastern, and Southern Africa Speak English Less Than Very Well	3,584	
Other Languages	2,321	-
Other Languages Speak English Very Well	1,793	-
Other Languages Speak English Less Than Very Well	528	0.66%

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APPENDIX B – TRANSIT EMPLOYEE INSTRUMENT

Language Assistance Program Survey 2018

*-denotes required question

*Name: _____

*Email Address: _____

*1. Location

- Customer Service Representatives (electronic, phone, email)
- Central Station Transit Center
- Ed Pastor Transit Center
- Metrocenter Transit Center
- Sunnyslope Transit Center
- Tempe Transportation Center

*2. Have you had any requests for information or materials in other languages?

- Yes
- No

If yes, please complete the remainder of the survey.

If no, thank you for your participation.

3. What language(s) have been requested?

_____

4. How often do you receive requests?

-More than once a week
-Once a week
-More than once a month
-Once a month
-Once every three months
-Once every six months
-Once a year
-Other:

_____

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APPENDIX C – WEBSITE SESSIONS BY LANGUAGE

Language	Number of Sessions	Percent of Total Sessions
Total	21,628,079[6]	100%
English	21,392,285	98.91%
Other Languages	222,177	1.03%
Language	**Number of Sessions**	**Percent of Non-English Sessions**
Spanish	123,377	0.57%
Chinese	26,684	0.12%
Japanese	13,950	0.06%
German	11,502	0.05%
French	10,316	0.05%
Korean	7,496	0.03%
Portuguese	6,225	0.03%
Italian	3,638	0.02%
Russian	3,303	0.02%
Dutch	2,576	0.01%
Arabic	1,822	0.01%
Swedish	1,483	0.01%
Turkish	1,221	0.01%
Polish	1,127	0.01%
Czech	839	0.00%
Norwegian	771	0.00%
Danish	726	0.00%
Vietnamese	670	0.00%
Hebrew	645	0.00%
Hungarian	645	0.00%
Finnish	531	0.00%
Thai	335	0.00%
Slovak	309	0.00%
Greek	293	0.00%
Romanian	232	0.00%
Indonesian	217	0.00%
Bulgarian	173	0.00%
Catalan	122	0.00%
Croatian	110	0.00%
Slovenian	101	0.00%
Persian	93	0.00%
Filipino	89	0.00%
Serbian	84	0.00%
Afrikaans	76	0.00%
Lithuanian	67	0.00%
Ukrainian	66	0.00%
Latvian	53	0.00%
Icelandic	31	0.00%

[6] There were 13,829 entries included that did not have a valid ISO language code associated with the website visit; thus the sum of languages will fall short.

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Estonian	24	0.00%
Marathi	16	0.00%
Kanuri	15	0.00%
Hindi	10	0.00%
Tagalog	10	0.00%
Azerbaijani	8	0.00%
Breton	8	0.00%
Malay	8	0.00%
Pushto	8	0.00%
Telugu	8	0.00%
Walloon	6	0.00%
Bengali	5	0.00%
Esperanto	5	0.00%
Macedonian	5	0.00%
Navajo	5	0.00%
Albanian	4	0.00%
Malay	4	0.00%
Acoli	3	0.00%
Georgian	3	0.00%
Kannada	3	0.00%
Tonga	3	0.00%
Armenian	2	0.00%
Bosnian	2	0.00%
Galician	2	0.00%
Gujarati	2	0.00%
Irish	2	0.00%
Javanese	2	0.00%
Malayalam	2	0.00%
Turkmen	2	0.00%
Aymara	1	0.00%
Welsh	1	0.00%

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Attachment C - Desert Sky Facility Site Equity Analysis

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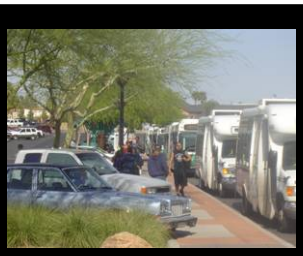

March 2011

Desert Sky Transit Center Study

An Assessment of Existing Facility and Operational Conditions and Alternative Site Analysis

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City of Phoenix
PUBLIC TRANSIT DEPARTMENT

1. INTRODUCTION

The Desert Sky Transit Center Study was initiated by the City of Phoenix Public Transit Department as part of the continuing efforts to improve public transit service and in support of the City's revitalization goals for West Phoenix.

The purpose of this study is to document current conditions at the existing transit center and assess how well the facility is meeting the City's transit operation needs as well as transit system user, or passenger, needs.

Finally, the study will serve as a major component of any future environmental assessment of impacts as required by the Federal Transit Administration (FTA).

Organization of the Study

The Desert Sky Transit Center Study provides an overview of existing conditions within the Maryvale Village and West Phoenix Revitalization Area, documents current site conditions at the transit center, assesses transit operation and passenger needs, evaluates nine potential new transit center sites, and recommends a preferred site.

The report is organized into the following sections:

- *Area Profile* provides an overview of the population and socio-economic data for the study area. Additionally, it describes both the urban development and transportation network within the study area and its relationship to other plans and programmed activities in the West Phoenix area.
- *Existing Conditions and Needs Assessment* describes and documents the current site and operational conditions at the existing Desert Sky Mall Transit Center. Existing transit center features and level of amenities are evaluated and compared to those found at a typical transit center and at other transit centers throughout the City of Phoenix.
- *Alternative Site Analysis and Recommendation* identifies potential transit center sites and evaluates each in accordance with established criteria. A recommendation is made for the preferred site and alternative sites for a new Desert Sky Transit Center.

2. AREA PROFILE

The Desert Sky Mall Transit Center is located with the Maryvale Village Core, in the north parking lot of the Desert Sky Mall, approximately 1,100 feet south and east of the southeast corner of 79th Avenue and Thomas Road.

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The Phoenix City Council and Planning Commission have divided the city into fifteen planning areas called urban villages in order to work better with the community on planning issues (Figure 2.1). The urban villages are based on the Phoenix General Plan that was adopted to guide the urban form of the city while creating a sense of place. Three key principles of the General Plan are:

- Balance housing and employment
- Concentrate intensity in village cores
- Promote the unique character of each village

Each village has a core that serves as the community focal point by combining the most intense land uses with a great variety of uses. By providing a mix of employment, housing and retail opportunities, this village "downtown" creates a physical identity for the residents. It is designed to serve as a gathering place with pedestrian activity and a focus for the local transportation system.

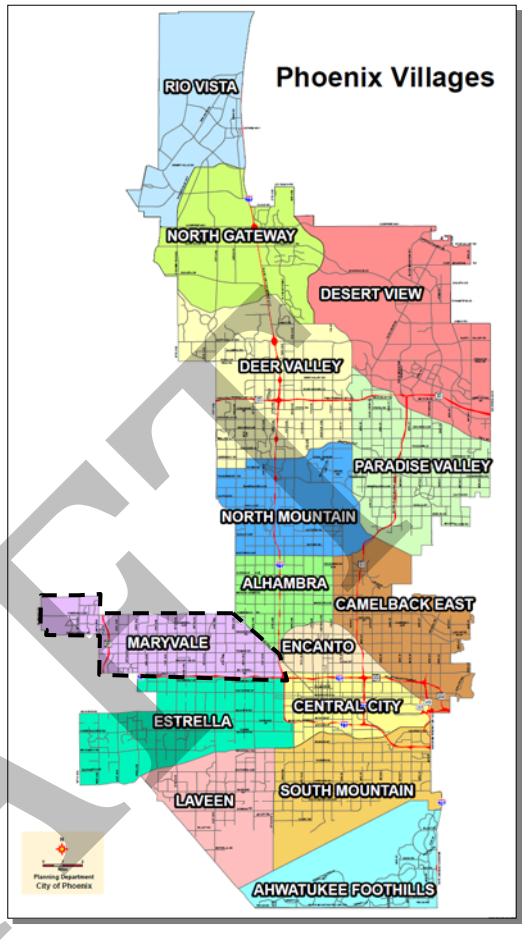

Figure 2.1 The Maryvale Village, shown in purple, is located in West Phoenix.

The Maryvale Village is located on the west side of Phoenix and is generally bounded by Interstate 17 (I-17) and Grand Avenue on the east, Interstate 10 (I-10) on the south, 99th Avenue and El Mirage Road on the west and Camelback Road on the north. The Village encompasses 32.5 square miles, approximately 6.3% of the land area in Phoenix.

Demographics[1]

Maryvale is one of the most populous of the 15 urban villages, with approximately 14.1% of Phoenicians residing within the Village. The Village's 2010 population is 204,560, up 7.6% from the 2000 Census, 189,996. Maryvale is expected to grow an additional 10.8% by 2030, accommodating 226,600 people. Maryvale has a population density of 6,296 persons per square mile which is more than double that of Phoenix, 2,785 persons per square mile.

Maryvale boasts a young, diverse population, as shown in Table 2.1. When compared to Phoenix at large, the percent of households living in poverty is only

[1] Demographic information reported is based on 2010 Census and 2006-2010 Census American Community Survey information unless noted otherwise. Specific information for the Maryvale Village has been calculated using Census Block Group data (to the best geographic fit with Census Block Groups).

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slightly higher in Maryvale, while the median household income is approximately 17% lower. With respect to race, approximately 51% of the Maryvale population reported being non-white or two or more races compared to 34% of all Phoenicians. Further, 88% more Maryvale residents reported being of Hispanic or Latino decent.

Table 2.1
Demographic Comparison of Maryvale and Phoenix

	Population	18 Years & Over	Hispanic or Latino	Household Size	Median Household Income	Population Living in Poverty
Maryvale	204,560	62.1%	77.2%	4.1	$40,504	20.6%
Phoenix	1,445,632	71.8%	40.8%	3.7	$48,845	19.1%

The Village Core is home to 3,337 employees. The retail sector employs the greatest number of people, 60%, while 36% of employees work in the service sector. Wal-Mart is the single, largest employer. Sears, Lowe's, Dillard's and Target are also major employers within the area.

Land Use

Maryvale is composed of a mix of land uses, as shown on the *Maryvale Village General Plan Land Use Map* (Figure 2.2). A variety of single- and multi-family neighborhoods dominate the landscape. The Village core, located between 75th and 83rd avenues and Thomas and McDowell roads, surrounds the Desert Sky Mall, an 892,642-square foot regional shopping center, and Ashley Home Furniture Pavilion, a 20,000-seat, open-air concert venue. A smaller, secondary core has developed at 51st Avenue and Indian School Road. An emerging mixed-use business center is developing along Loop 101. Banner Estrella Medical Center is located at the southern edge of the business center at southwest corner of 91st Avenue and Thomas Road. A significant industrial area is located on the east side of the Village adjacent to Grand Avenue and the Burlington-Northern Railroad tracks.

Public Facilities

Two primary schools, Manuel Pena Elementary School and Raul H Castro Middle School, are located within the Village Core, immediately west of Desert Sky Mall on the southwest corner of 79th Avenue and Thomas Road. The Desert Sage Library is located on the south side of the mall, north of Encanto Boulevard, between 79th and 75th avenues.

Transportation Network

The area is served by an extensive transportation network. Interstates 10 (I-10) and 17 (I-17) provide access to the southern and eastern portions of the village, respectively and Loop 101 runs through the west. A comprehensive system of major arterial, arterial, collector and local streets laid out on a grid network serve the village. The village is bisected by a network of local streets, with four major east-west arterials crossing the village: Camelback, Indian School, Thomas and McDowell roads.

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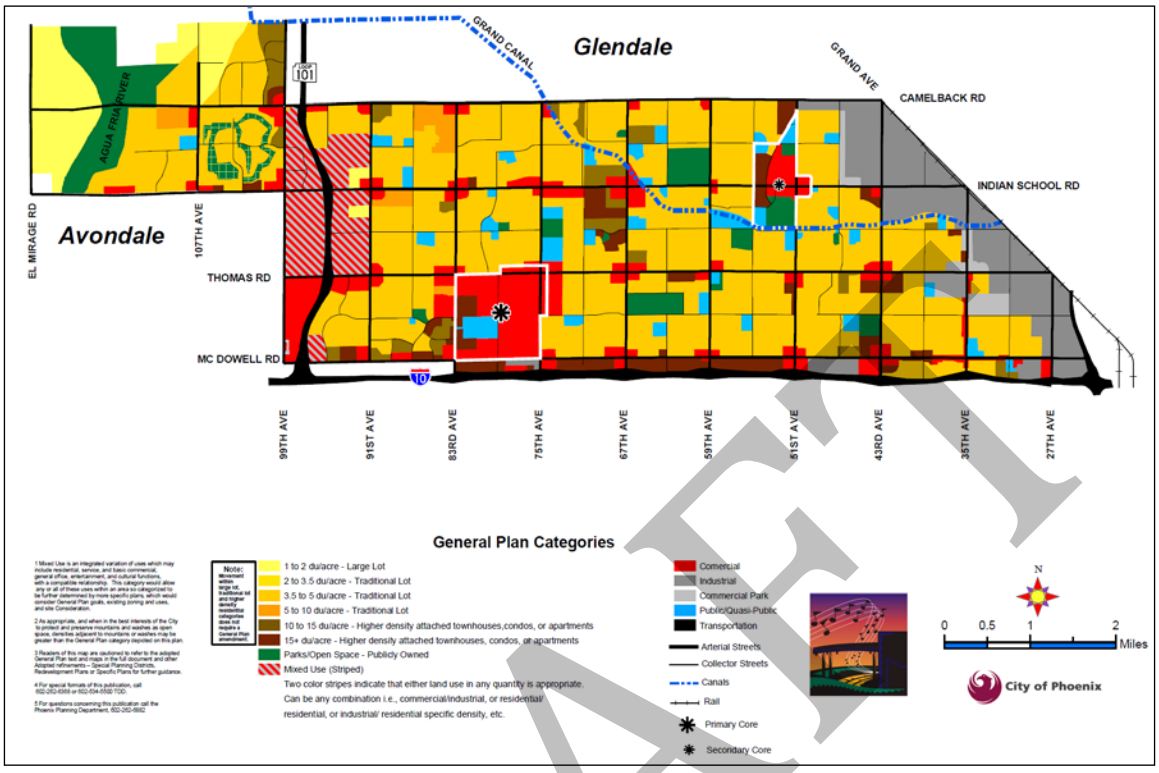
Figure 2.2: ***Maryvale Village General Plan Land Use Map***



Four of the City's top 10 most productive local fixed routes serve the area: Route 29 (Thomas Road); Route 41 (Indian School Road); Route 50 (Camelback Road); Route 17 (McDowell Road). Additionally, two of the top city-wide High Capacity Transit corridors are located within the Village, I-10 West and Thomas Road. The City of Phoenix High Capacity Transit Corridor Study evaluated 21 potential corridors and identified nine upper tier corridors based on the following criteria:

- Population Concentrations
- Employment Concentrations
- Ridership Potential
- Economic Development Potential
- Transportation Connections
- Regional Serving Destinations Inside the City
- Potential for High Speed Operations
- Promotion of Regional Smart Growth Principles
- Regional Destinations Outside the City

The I-10 West and Thomas Road corridors ranked second and fourth, respectively.

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Transit riders within the Village and greater area are served by the Desert Sky Transit Center and the 79th Ave and I-10 Park-and-Ride. The Desert Sky Transit Center, located within the Village Core, is described in detail in the following section. The 79th Avenue and I-10 Park-and-Ride is located at the southeast corner of 79th Avenue and McDowell Road, just north of I-10. A High-Occupancy Vehicle (HOV)-only ramp to and from I-10 is located at 79th Avenue, directly connecting the park-and-ride facility with the Interstate.

West Phoenix Revitalization Area

The Phoenix City Council created the West Phoenix Revitalization Community Advisory Board in 2006 to give advice and provide recommendations on long-term approaches to revitalizing West Phoenix. The area, known as the West Phoenix Revitalization Area (WPRA), encompasses 52 square miles and is comprised of portions of Alhambra, Encanto and Maryvale villages (Figure 2.3). The Desert Sky Transit Center is the only transit center located within the WPRA.

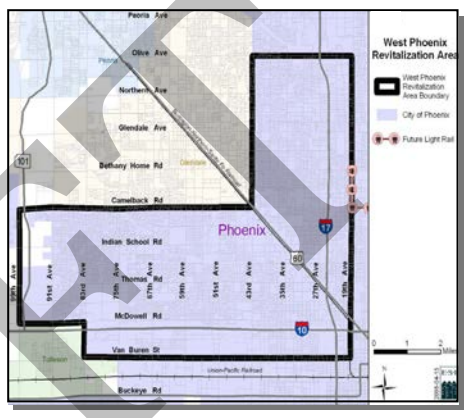

Figure 2.3 The West Phoenix Revitalization Area (WPRA), shown here, encompasses 52 square miles northwest of downtown Phoenix.

Utilizing a planning grant from the Economic Development Administration, the Phoenix Neighborhood Services Department and the WPRA Advisory Board created the *City of Phoenix: West Phoenix Revitalization Area Economic Development Plan* in July 2008. The plan recognized that host of activities are needed to begin revitalizing the WPRA. The plan identifies the following key activities for success:

- Identifying and capitalizing on economic development opportunities within key corridors.
- Promoting the creation of mixed use, including office, retail and entertainment, which in turn drive a critical mass of economic activity within the WPRA.
- Preparing the workforce for career jobs.
- Providing quality public infrastructure and streetscapes within major corridors to spur on private sector investment.
- Enhancing the safety and image of the area by eliminating crime and blight.

As the Desert Sky Transit Center is the only transit center in the WPRA, improving and upgrading the facility would not only be an investment in public transit, but an investment in the community. An upgraded facility would support the goals and efforts of the WPRA by providing quality public infrastructure in an area that is in great need. Additionally, the investment could help spur private investment in the community to further enhance the revitalization efforts of the community and the WPRA.

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Conclusions

The Maryvale Village has a dense and diverse population. The area is of regional significance for current and future public transit service. Existing and potential transit usage is high as evidenced by the fact that four of the most productive local fixed transit routes within the City pass through the Village (Routes 17, 29, 41, and 50) as well as two of the top High Capacity Transit Corridors (I-10 West and Thomas Road). The Village Core has a concentration of commercial retail and office activity and serves as a focal point for the local transportation system.

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3. EXISTING CONDITIONS AND NEEDS ASSESSMENT

EXISTING CONDITIONS

A transit center is a passenger facility sited at the confluence of several routes where passengers transfer and/or at major destinations served by the regional transit system. The design of transit centers must facilitate vehicular movements as well as boarding and transferring of passengers (including intermodal transfers).

Figure 3.1 The Desert Sky Transit Center is a linear facility that sits on one-quarter acre within the parking lot of the Desert Sky Mall.

The Desert Sky Mall Transit Center is located with the Maryvale Village core, in the north parking lot of the Desert Sky Mall, approximately 1,100 feet south and east of the southeast corner of 79th Avenue and Thomas Road (Figures 3.1 and 3.2). The transit center was built on leased property in 1989 and was refurbished in 2003 with upgrades to the lighting; landscaping and irrigation systems; passenger shelter; drinking fountain, and coolers.

Figure 3.2: ***Desert Sky Mall Transit Center Aerial Map***

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Transit Center Amenities

The Desert Sky Mall Transit Center consists of a 510-foot long curb and walkway (Figure 3.3). Passengers board awaiting buses along the east side of the walkway. Public transit vehicles typically queue in the order that they arrive to the transit center, moving forward to provide space for additional vehicles as needed. There are no designated or signed stops.

Figure 3.3 The Desert Sky Transit Center is a long, linear passenger platform. As buses only board on the east side of the platform, passengers must walk up and down the row of buses to find their desired bus amid the unmarked row of awaiting buses.

The transit center's walkway is 25 feet at its widest point. Static transit information is displayed in a three-sided information kiosk located in the middle of the center. Passenger amenities include two seating areas: one seating area is located within a shelter structure equipped with evaporative coolers and the other consists of six benches adjacent to shade trees. A water fountain is located adjacent to the shelter structure.

A visual inspection of the site revealed that the passenger shelter and bench seating areas show signs of peeling paint, rusting and graffiti damage and are in need of attention. The water fountain appears to be rusting and was leaking on the day of inspection. Route information in the information kiosk appeared to be difficult for some passengers to read and one side of the display was missing information altogether.

Additionally, an American with Disabilities Act (ADA) review conducted in 2005 determined the parking access aisle, drinking fountain, and boarding area as "non-compliant". While the routes, parking, and curb ramps are ADA compliant, the curbs are still not ADA accessible. The transit center is sloped throughout which makes it inconvenient for wheelchair-bound customers to maneuver in a comfortable manner. ADA compliance must to be up to the current City of Phoenix standards and adhere to Federal Transit Administration (FTA) Guidelines.

Routes and Passengers

The Desert Sky Mall Transit Center is served by a variety of public transit routes, including three of the top 10 most productive local routes, 17, 29 and 41. As of August 2010, eight public transit routes serve the Desert Sky Mall Transit Center including RAPID, Express, Local and Neighborhood Circulator service. The routes are described and depicted in *Figure 3.4: Public Transit Routes Serving the Desert Sky Mall Transit Center*. Access to the transit center is provided through the parking lot of the Desert Sky Mall. Buses utilize drive aisles with shopping center

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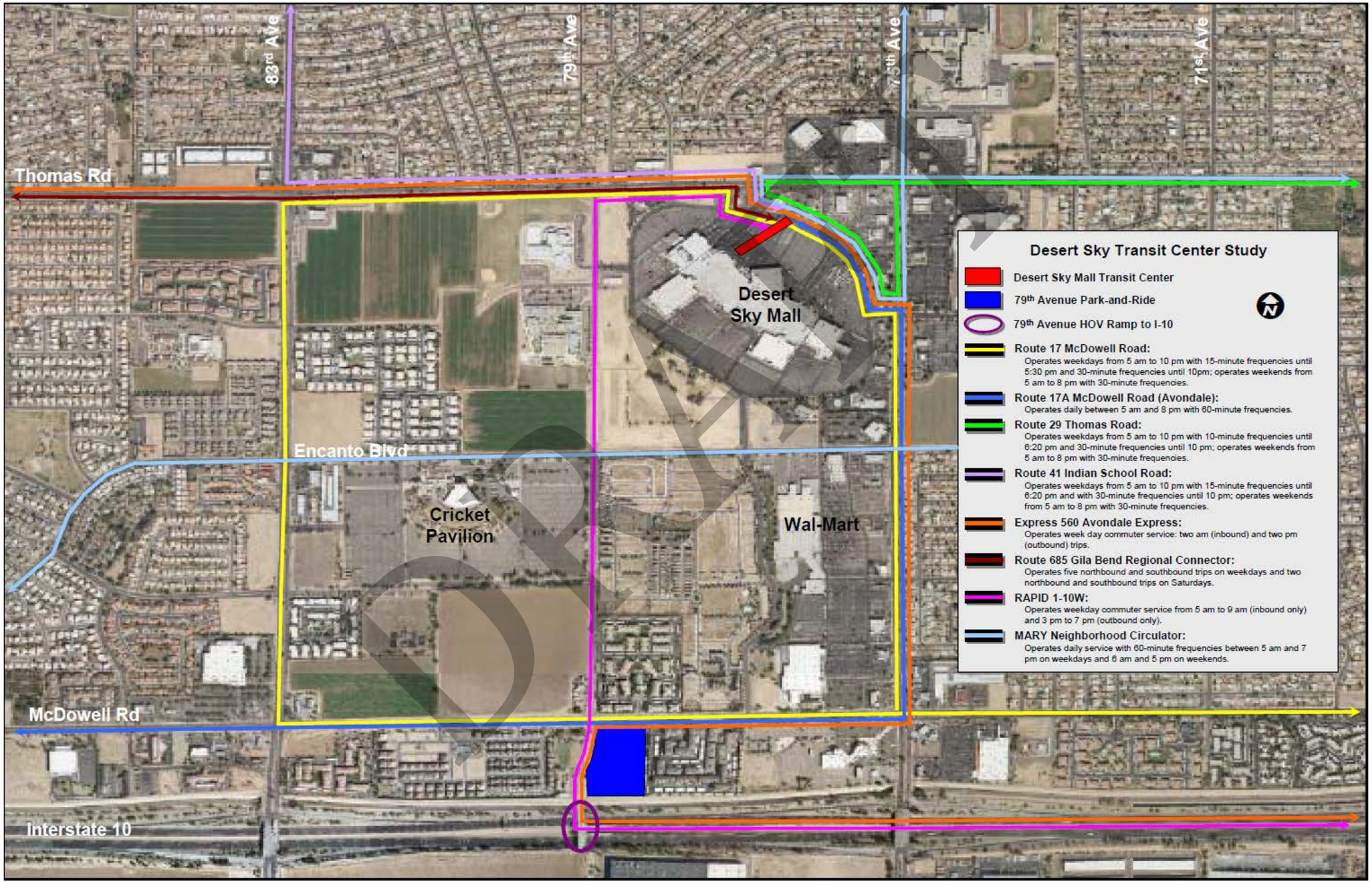
Figure 3.4: ***Public Transit Routes Serving Desert Sky Mall Transit Center***



patrons and a portion of the access route travels down a parking aisle, creating hazardous conditions during peak transit and shopping times.

Staff analyzed passenger boardings at all Phoenix transit centers between January and June of 2010 (Table 3.1). Data shows that, on average, there are over 60,000 passenger boardings per month at the Desert Sky Transit Center, making it the City's busiest transit center for bus boardings. Desert Sky falls behind Central Station when light rail boardings are added to the equation, as Central Station is the only Phoenix transit center along the light rail line.

Table 3.1 *Passenger Bus Boardings*

MONTH	Ed Pastor	PV Mall	Sunnyslope	Metro Center	Central Station*	Desert Sky
January	9,894	12,597	26,755	43,146	40,646	68,187
February	6,251	13,656	22,912	41,061	39,872	72,322
March	7,484	14,687	28,418	45,370	45,858	75,824
April	8,501	14,276	26,952	44,125	44,563	78,298
May	6,987	13,469	25,034	43,146	45,214	60,862
June	6,223	13,394	24,115	41,963	51,084	60,161
Total	**45,340**	**82,079**	**154,186**	**258,811**	**267,237**	**410,654**
Ave/Month	**7,557**	**13,680**	**25,698**	**43,135**	**44,540**	**68,442**

* Each month there is an average of 47,975 weekday light rail passenger boardings at Central Station in addition to the bus boardings.

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NEEDS ASSESSMENT

This section provides an assessment of the current conditions and identifies improvements that may be needed to meet the City's operational and passenger needs. Facility refurbishments were last completed in 2003, including passenger shelters, lighting fixtures, evaporation coolers, and other structural repairs.

Located within the Maryvale Village Core, the Desert Sky Transit Center fits the definition of an Urban Transit Center:

> *Urban Transit Centers are typically located within an urban core and primarily serve as destination facilities of the regional transit system. They are designed to maximize pedestrian connections with major employment centers and activity centers, and will typically be served by local shuttle service in addition to regional and community bus routes.*[2]

Public Transit Operations

Designated Stops

Well-designed transit centers have designated bus stops and protected waiting areas for both buses and passengers. Signs identifying bus routes and berths direct the flow of buses as well as help passengers locate buses (Figure 3.5).

There is currently no signage identifying the routes that serve the transit center or where passengers should wait for the next bus. Passengers report being confused about where to wait for a specific bus and have reported missing a connecting bus. The lack of signage on site creates confusion and adds to congestion at the facility, especially during peak times (Figure 3.6).

Figure 3.5 Designated bus stops with clearly identified, shaded passenger waiting areas at the Paradise Valley Transit Center.

Figure 3.6 Without dedicated berths and adequate signage, it is often difficult for passengers to find their connecting bus amidst the long row of buses.

[2] Excerpt from Valley Metro: *Passenger Facilities Handbook*, June 1995.

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Bus Staging and Layovers

The Desert Sky Transit Center serves as the terminating point for many of the public transit routes that serve West Phoenix. The period between the end of one route and the beginning of the next is known as the staging and layover time. Ideally, buses stage in a berth assigned to a particular route or in a designated general staging area able to accommodate multiple buses. During this staging period, it is not unusual for bus operators to take breaks, inspect their vehicle or perform shift changes.

The number buses accessing the existing transit center exceeds its current capacity. The Desert Sky Transit Center is currently served by eight routes. With 510 linear feet available, the number of buses that can access the facility at one time is limited. No berths or bus bays exists. As a result, buses are forced to find an alternate location to stage and layover. While no formal agreement between the City or the transit operating company and the shopping center exists, buses (five to eight during peak times) have been staging and laying over in the former Shoe Pavilion parking lot located in the northeast corner of the shopping center (Figure 3.7).

Figure 3.7 Buses serving the Desert Sky Mall Transit Center layover on private property. This aerial photo shows eight vehicles, including two articulated buses, awaiting their next routes. In the photo inset, an articulated bus and a standard 40-foot bus wait during their layover.

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Designated on-site berths, or bus bays, are necessary to provide protected space within the transit center for buses during staging and layover periods.

Transit Center Access

Adequate access into a transit center is important for traffic calming and volume flow in and out of the facility. Lanes should be designated for a specific direction and buses should not have to cross into the opposite lane to pass a staged bus. There is space available for buses to depart and pass staged buses without encroaching into regular vehicular traffic.

Upon entering the facility, there is only one lane available which ingress and egress could potentially cause problems and safety issues for pedestrians and oncoming vehicles entering into the transit center. There are cases where buses have to cross into the opposite lane in order to keep on schedule to exit the facility as shown in Figure 3.8.

Figure 3.8 Buses that maneuver out of the pick-up/drop-off lane have no alternative available except to cross into oncoming traffic.

Security

Sufficient security is essential in order for patrons to feel safe while waiting for a bus to arrive and also to keep civil order at the facility. Additionally, on-site security serves to safeguard the facility and the public investment that have been made. Currently, there is not an on-site security office or closed-circuit security cameras at the transit center. Limited on-site security is provided: a security guard patrols the site on weekdays during peak afternoon times. Additionally, Macerich, the shopping center owner, provides limited, ancillary security coverage as part of their facility operations.

Passenger Amenities

Transit center designers strive to provide for the security and comfort of passengers. When successful, the resulting sense of safety and comfort of the passengers increases their willingness to use the facility and helps bolster ridership and utilization of the public transit system.

On-Site Customer Service

On-site customer service staff provides a vital service to transit passengers. Customer service staffs at Phoenix transit centers sell fare media, provide information about transit route schedules and operating times, and help

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passengers navigate the public transit system. There is currently no on-site customer service provided at the Desert Sky Transit Center. Passengers are able to purchase fare media inside the Desert Sky Mall at the mall's customer service desk. With more than 68,000 passenger boardings each month, the Desert Sky Transit Center is in need of on-site customer service to assist passengers.

Information Kiosk

Information kiosks provide static information about the public transit system including route maps and schedules as well as important customer notifications. There is a three-sided information kiosk located in the middle of the passenger boarding area at the Desert Sky Mall Transit Center. This kiosk is the only forum for public transit information available and suffers from occasional vandalism (Figure 3.9).

Figure 3.9 As the only form of transit information at the Desert Sky Mall Transit Center, passengers rely on the schedules and notices posted in the information kiosk to help them navigate the public transit system throughout the day. Frequent vandalism reduces the effectiveness of the kiosk as the sole information source on site.

Passenger Comfort Amenities

Access to drinking fountains is a frequent request and expectation of passengers at transit facilities, especially in the Phoenix area. The drinking fountain at the Desert Sky Mall Transit Center needs to be brought into compliance with ADA requirements (Figure 3.10).

Figure 3.10 The drinking fountain at the Desert Sky Mall Transit Center lacks the ADA-required dual-height fountains.

While the popularity of personal cellular telephones have reduced the demand for public pay phones in recent years, pay phones should be provided to meet all passenger needs as well as ensure passengers have the ability to make emergency calls should the need arise.

Restrooms are one of the most-requested passenger amenities and public transit facilities, especially at transit centers where passengers may have extended layover times between connecting routes. However, they can have a significant impact on the annual operation and maintenance costs of the facility. As a result, the

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decision to provide public restrooms at a transit center is often a policy decision, rather than a design consideration. There are currently six transit centers in the Phoenix transit system. Public restrooms are provided at two of the six, Central Station and Ed Pastor. Restrooms are provided for transit center staff and bus operators at the Sunnyslope and Paradise Valley Mall transit centers. No restrooms, for the public or staff, are available at the Desert Sky Mall or MetroCenter transit centers.

Passenger Seating

Passenger seating areas should be designed to provide relief from the elements. A combination of horizontal and vertical shade elements, including natural vegetation as well as man-made structures, can provide an effective and attractive passenger spaces that provide relief from the sun, wind and rain (Figure 3.11). While there are two passenger seating areas at the Desert Sky Transit Center – one cluster of benches set amidst a number of shade trees as well as one protected by a shade structure, they are not adequate to provide sufficient shade or seating for the volume of passengers.

Figure 3.11 A mixture of nature shade (trees) and shade structures provides an abundance of shade options for patrons that are waiting for buses, especially during summer months, at the Paradise Valley Mall Transit Center.

Bicycle Lockers or Rack and Parking

Bicycle lockers or racks are needed at transit centers to accommodate and encourage multimodal use. Depending on the location and anticipated transit services provided, the addition of a park-and-ride component is warranted at a transit center. For example, if commuter service is provided, like RAPID service at the Desert Sky Mall Transit Center, weekday commuters will likely access the facility via their personal automobile and would need to be accommodated. While no parking spaces are included in the area leased for the Desert Sky Mall Transit Center, RAPID passengers do park in the mall parking lot adjacent to the facility.

Conclusion

Developing an independent transit facility located apart from the shopping center parking lot would alleviate the disorder, clutter, and confusion that transit riders experience at the existing facility. Further, while there are amenities available at the Desert Sky Transit Center, as shown in Table 3.3, the variety and quality of amenities, including security, customer service, fare sales, ticket vending machines, restrooms, and covered parking are not available at this facility. A new facility would allow for improvements to be made to the public transit infrastructure and level of amenities provided to transit riders in the West Phoenix area that are not currently possible due to the limitations of the current facility size and property lease agreement.

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Table 3.2: City of Phoenix Transit Center Characteristics and Features

TRANSIT CENTER CHARACTERISTICS AND FEATURES							
		Central Station	**Desert Sky**	Ed Pastor	Metrocenter	Paradise Valley	Sunnyslope
Public Transit Operations	Facility Size (acres)	2.6	**0.25**	4.4	2.6	1	1.8
	Average Monthly Boardings	44,540	**68,442**	7,557	43,135	13,680	25,698
	Designated Stops/Staging	X		X	X	X	X
	Bus-Only Access	X		X	X	X	X
	Operator Restrooms	X		X		X	X
	On-Site Security	X		X	X		X
	Security Cameras	X		X	X	X	X
Customer Service Amenities	On-Site Customer Service	X		X	X		X
	Information Kiosk	X	**X**	X	X	X	X
	Fare Media Sales	X		X	X		X
	Public Restrooms	X		X			
	Drinking Fountains	X	**X**	X	X	X	X
	Bicycle Lockers/Racks	X		X	X	X	X
	Public Pay Phones	X		X	X	X	X
	Shaded Seating	X	**X**	X	X	X	X
	Parking[3]			X	X	X	X

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[3] Parking is for employees only at Ed Pastor Transit Center and covered parking is available at Metrocenter and Sunnyslope Transit Center. While there are no designated parking spots for transit passengers at Desert Sky Mall within the leased transit center area, transit passengers do utilize a number of spaces in the shopping center parking lot that are within close walking distance to the transit center.

4. SITE ALTERNATIVES ANALYSIS

The documentation of existing conditions, City of Phoenix planning initiatives, input from City staff, and a visual survey performed by Public Transit Department staff all contributed to the identification of a series of sites for the potential development of a new Desert Sky Transit Center. These sites were put through an evaluation process to determine the two most appropriate sites for further consideration from the initial field of nine alternatives.

Study Area

To help identify a study area for a new transit center, staff identified the following site location considerations:

- Locate near the existing site to minimize disruptions to existing transit routes and transit users;
- Locate within one-half mile of Thomas Road, an identified High Capacity Transit Corridor;
- Locate within one-half mile of 79th Avenue, which provides direct access to the 79th Avenue and I-10 Park-and-Ride, the dedicated HOV access to I-10, and the West Transit Operations Facility;
- Locate within the Maryvale Village Core to support the General Plan goal of locating dense and intense land uses within Village Cores, thus creating a focal point for activity and the local transportation system;
- Locate near employment and commercial centers; and
- Locate near existing or planned community facilities.

Based on these considerations, staff defined a study area within the Maryvale Village Core approximately bound by 83rd Avenue on the west, Thomas Road on the north, 75th Avenue on the east, and Encanto Boulevard on the south. Nine potential sites were identified within the study area (Figure 4.1) and are described in Table 4.1.

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Figure 4.1: ***Desert Sky Transit Center Existing and Potential Sites***

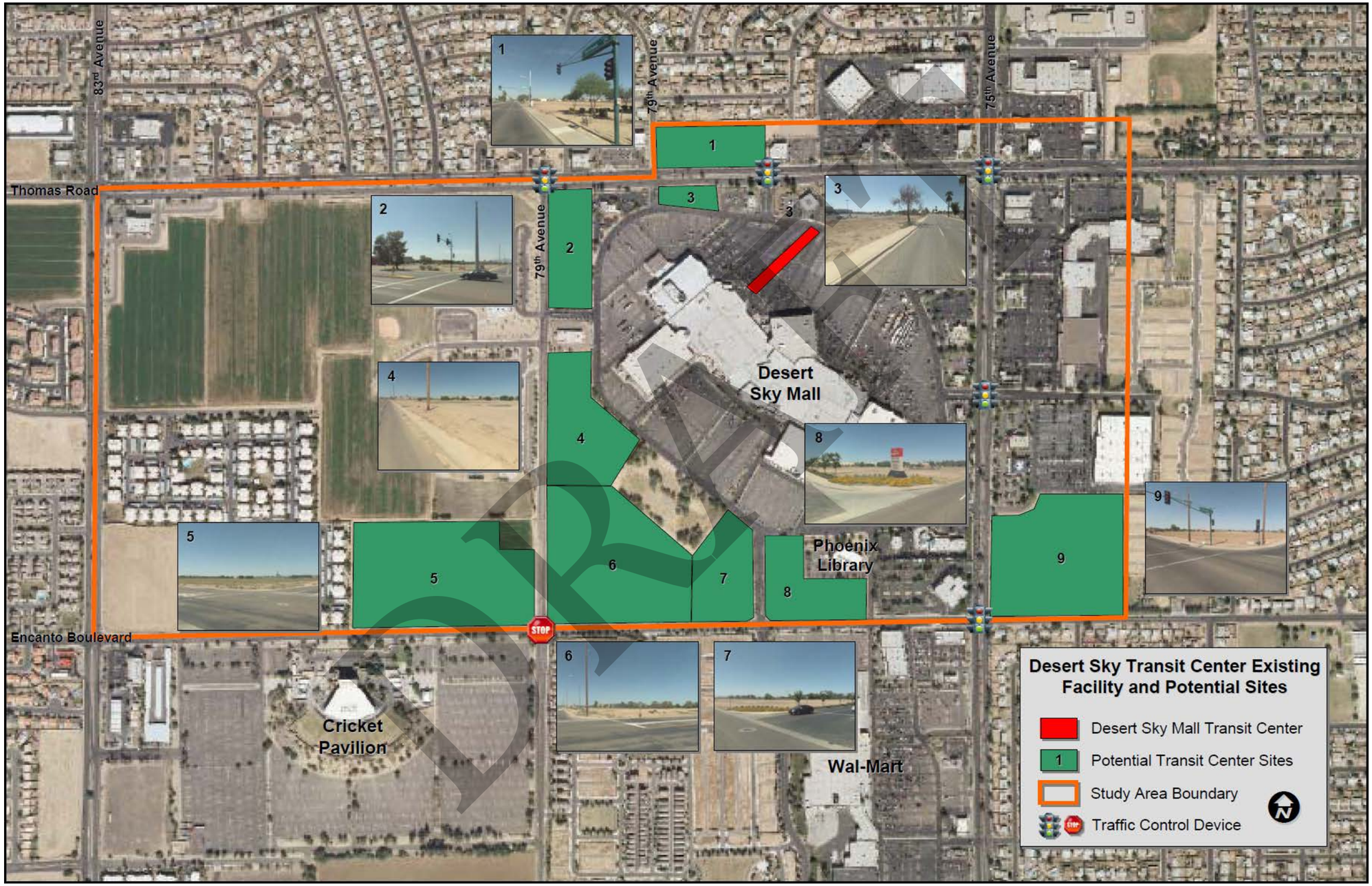

Table 4.1 *Potential Transit Center Site Size and Location*

Site #	Size	Location	Primary Owner	General Characteristics
1	4.2 ± acres	695 ft east of the northeast corner of 79th Ave/ Thomas Rd	Thomas and Patricia Tait	• Vacant, linear site • Access to Thomas Rd and 79th Ave • Signal on Thomas at east property line • North of Desert Sky Mall • Adjacent to existing single-family residential
2	4.1 ± acres	Southeast corner of 79th Ave/ Thomas Rd	Westpen Associates	• Vacant, linear site • Access to Thomas Rd and 79th Ave • Signal at Thomas Rd and 79th Ave • On northwest corner of Desert Sky Mall property
3	1.8 ± acres	695 ft east of the southeast corner of 79th Ave/ Thomas Rd	Westpen Associates	• Vacant, linear site • Access to Thomas Rd • On north side of Desert Sky Mall property
4	6.9 ± acres	990 ft south of the southeast corner of 79th Ave/ Thomas Rd	Westpen Associates	• Vacant, irregularly shaped site • Access to 79th Ave • One-quarter mile south of Thomas Rd • On west side of Desert Sky Mall property
5	14.1 ± acres	Northwest corner of 79th Ave/ Encanto Blvd	79th & Encanto LLC	• Vacant, rectangular site • Access to 79th Ave and Encanto Blvd • Four-way stop at 79th Ave and Encanto Blvd • One-half mile south of Thomas Rd • West of Desert Sky Mall; North of Cricket Pavilion • Adjacent to existing multi-family residential
6	13.4 ± acres	Northeast corner of 79th Ave/ Encanto Blvd	Westpen Associates	• Vacant, irregularly shaped site • Access to 79th Ave and Encanto Blvd • Four-way stop at 79th Ave and Encanto Blvd • One-half mile south of Thomas Rd • On southwest corner of Desert Sky Mall property; Northeast of Cricket Pavilion
7	4.7 ± acres	1,335 ft east of the northeast corner of 79th Ave/ Encanto Blvd	Westpen Associates	• Vacant, irregularly shaped site • Access to Encanto Blvd • One-quarter mile east of 79th Ave and west of 75th Ave • On south side of Desert Sky Mall property
8	4.2 ± acres	675 ft west of the northwest corner of 75th Ave/ Encanto Blvd	Westpen Associates	• Vacant, L-shaped site • Access to Encanto Blvd • One-quarter mile east of 79th Ave and west of 75th Ave • On south side of Desert Sky Mall property • Adjacent to the City of Phoenix Desert Sage Library
9	12.6 ± acres	Northeast corner of 75th Ave/ Encanto Blvd	Westridge Park Investors LP	• Vacant, rectangular site • Access to Encanto Blvd and 75th Ave • Traffic signal at Encanto Blvd and 75th Ave • One-half mile south of Thomas Rd • Southeast of Desert Sky Mall • Adjacent to residential development

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ANALYSIS

The mix of land uses and urban design features in transit corridors contribute to transit's attractiveness as a mode of travel. The characteristics of areas around stations strongly influence the way in which patrons travel to and from transit. Measures of "pedestrian friendliness" include the following attributes:

- Street connectivity
- Sidewalk and bikepath connectivity
- Use of street crossing on principle arterials
- Absence of topographical constraints to pedestrian mobility

Urban design features (defined as "aesthetic urban settings") have the greatest influence of any of the factors analyzed on transit mode choice. The presence of shade trees and sidewalks and the absence of graffiti and other factors contribute to the mode choice decisions.

Studies have shown that neighborhood shopping and pedestrian access possess a strong correlation with vehicle miles traveled. Land use mix has special importance for people walking or bicycling to transit services. Also, businesses providing services to riders, such as personal services and retail attract more people to stations.

As the Desert Sky Transit Center is one of the busiest transit centers in the City of Phoenix Public Transit system, particular care needs to be taken when developing a new expanded facility to ensure that the location, size, and proposed amenities at the facility meet the needs of existing and future transit users.

Criteria for Preliminary Site Evaluation

The needs assessment findings and project goals and objectives included in this study led to the identification of nine (9) preliminary sites designated for analysis as well as a set of evaluation criteria. Each of these standards was developed into a matrix that rated the initial set of transit center site alternatives.

Proximity to Existing Transit Center and Routes – As the existing transit center currently serves an average of 60,000 transit riders per month, locating a new facility in close proximity to the existing facility will minimize the disruption for current passengers. Additionally, there are currently eight routes that serve the transit center. Sites were evaluated based on the ability to serve the existing routes with minimal disruption or rerouting.

Proximity to Existing and Future Transportation Corridors – *(Bus access/routing, freeway system, bikeways, major arterial streets)*. All planned transit facilities must consider the overall transportation network to determine whether the facilities make appropriate connections between existing and future transit routes, freeways, and pedestrian and bicycle corridors. All of these

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transportation modes are important to ridership connections and ease of accessibility to a given system. Sites were evaluated based on their proximity to the identified Thomas Road and I-10 High Capacity Transit corridors, including the HOV connection to I-10 at 79th Avenue, as well as major arterials important to the provision of local service, Thomas Road and 75th Avenue.

Site Size and Configuration – The size and configuration of a potential site is an important consideration. Enough acreage must be available to support planned operations and passenger amenities, with room for expansion if possible. However, Sites that are too large may cause problems during acquisition if lot splits are required or require future land disposition if too much land is purchased. The site configuration must allow the transit center facility to maximize the utilization of space. To accommodate planned transit operations, the Desert Sky Transit Center site should be at least four to five acres in size.

Visibility and Rider Attractiveness – Area transit facilities should be very visible from highly utilized areas in as many directions as possible to foster a sense of security for the passenger. A well-defined and visible transit center should include convenient linkage to adjacent uses and use of existing surrounding architectural opportunities for ties with the proposed facility. The objective is to encourage flexibility and creativity while still meeting transit and community objectives. Adjacent street design must recognize the need for easy and safe pedestrian access and visibility and lend itself to appropriate changes for pedestrian crossings and access points. Sites were evaluated based on their proximity to highly trafficked automobile and pedestrian corridors.

Safety Concerns – While the transit center will de design and developed to maximize safety, opportunities can be present to maximize the safety of the passenger and facility. Sites located adjacent to uses or businesses with extended hours of activity can provide valuable “eyes on the site” safety.

Accessibility – Buses must be able to access the chosen transit center site safely with minimal passenger delay due to bus route diversion. Sites were evaluated based on the ability of buses to make safe left turns, direct access to arterial streets, minimal cross-access through private property, and convenient bus turn-around routes.

Acquisition Issues – A host of issues arise when alternative sites area being studies for location and development of a transit center. The difficulty in acquiring a site may hinge upon cost, existing plans already submitted to the Planning and Development Services Department, questions of ownership and known legal problems or zoning conflicts.

Pedestrian Connectivity to Desert Sky Mall – All of the proposed sites are located within the Maryvale Village Core, where higher concentrations of commercial and employment activity and higher density residential development is desired and supported by the Phoenix General Plan and existing zoning.

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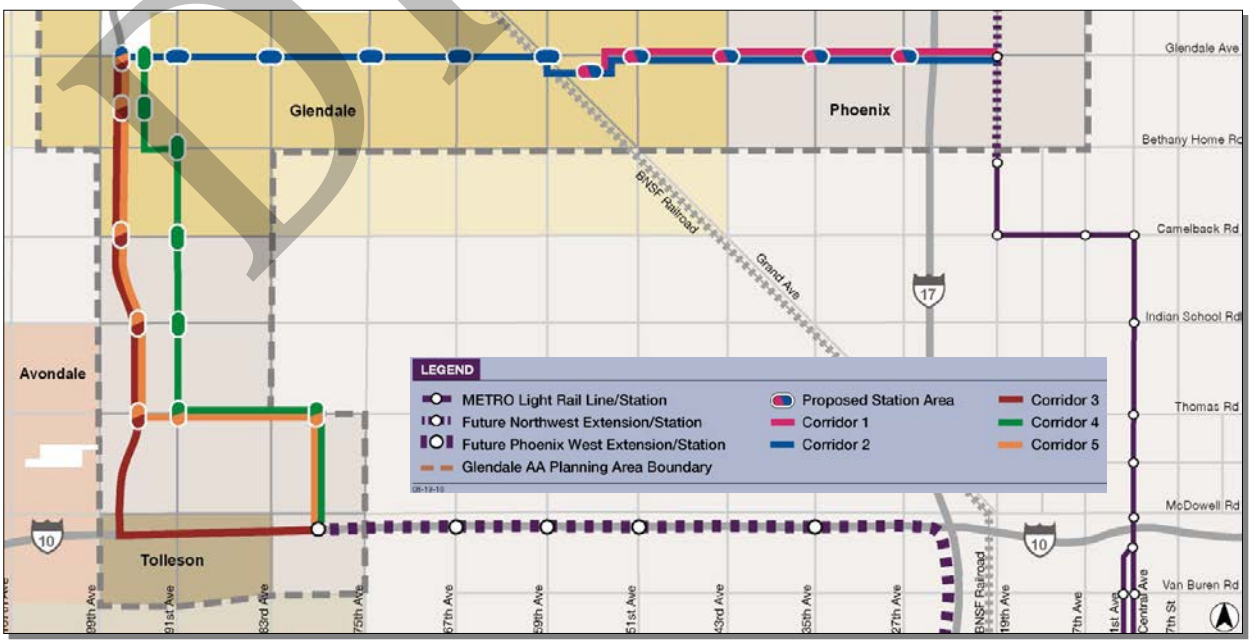
However, the success of the existing transit center, despite the lack of traditional amenities provided at other City of Phoenix transit centers, is due in part to the proximity of the Desert Sky Mall. The Desert Sky Mall is a key activity center within the Maryvale Village Core. Sites were evaluated based on the ability to tie the future transit center into existing pedestrian connections to the Desert Sky Mall.

Land Use Compatibility – Land use patterns in the surrounding area have a significant impact on transit operations and on the level of transit ridership. Some land uses are particularly sensitive to the impacts associated with transit centers: noise, exhaust, and waiting passengers. Transit-oriented pedestrian-bicycle networks provide direct, safe and interesting pedestrian paths to transit facilities from residences or commercial development. As all of the potential sites are located within the Maryvale Village Core, sites were evaluated based on compatibility with exiting development. Sites adjacent to residential development were seen to be more sensitive to transit center operations than those adjacent to commercial establishments.

Potential Light Rail Connectivity – The Phoenix West Light Rail (LRT) Extension is part of a regionally-approved transportation plan and is one of the LRT extension corridors that will travel westbound from the METRO starter line in downtown Phoenix to the 79th Avenue park-and-ride area. In all scenarios the Phoenix West LRT will stop along I-10 West at 79th Avenue, serving the I-10/79th Avenue Park-and-Ride. Two potential extentions to Glendale would bring LRT north on 79th Avenue to Thomas Road, continuing west and north to the Westgate entertainment district in Glendale (Figure 4.2). Sites were evaluated based on connectivity with potential Phoenix West LRT routes.

Figure 4.2: LRT Glendale Corridor Alternatives



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Results of Preliminary Site Evaluation

The preliminary sites were evaluated using the ten criteria described above. Table 4.2, *Preliminary Site Evaluation Summary*, condenses the evaluation process and illustrates the rating comparison of each of the proposed sites. A site collecting a perfect rating would obtain 45 points. Based on this evaluation, sites 1, 2, and 4 earned ratings of 39, 45, and 37, respectively, and were chosen for further analysis.

Table 4.2 *Preliminary Site Evaluation Summary*

Criteria ***Site#***	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***
Proximity to Existing Transit Center and Routes	4	5	5	3	2	2	1	1	3
Proximity to Existing and Future Transportation Corridors	5	5	5	3	3	3	1	1	4
Site Size and Configuration	5	5	1	5	2	2	5	3	2
Visibility and Rider Attractiveness	5	5	5	2	2	2	1	1	4
Safety Concerns	4	5	5	5	4	4	5	5	4
Accessibility	5	5	2	4	5	5	4	4	5
Acquisition Issues	4	5	4	5	1	4	5	5	1
Pedestrian Connectivity to Desert Sky Mall	4	5	5	5	1	2	5	5	3
Land Use Compatibility	3	5	4	5	4	5	5	5	4
Potential Light Rail Connectivity	3	5	3	5	5	5	3	3	1
TOTAL	**42**	**50**	**39**	**42**	**34**	**34**	**35**	**33**	**36**

Through the preliminary site evaluation, the initial nine alternative sites were narrowed to four for further study and prioritization. All of the sites eliminated from further consideration are listed in Table 4.3, *Alternative Transit Center Site Issues*, with an identification of areas of concern for each site.

Site 3, located along the south side of Thomas Road, immediately north of the existing transit center, was eliminated primarily due to its size. At less than two acres, the site is simply too small to accommodate current and planned transit operations.

Sites 5, 6, and 9 are all located along the north side of Encanto Boulevard and are greater than 10 acres, larger than is needed for a transit center or even a joint transit center and park-and-ride facility at this location. Additionally, sites 5 and 9 have recent or active development interest and plans filed with the Planning and Development Services Department. Site 6 is located adjacent to a large stormwater retention basin in to which the entire Desert Sky Mall site drains.

Sites 7 and 8 are located one-quarter mile between 75th and 79th avenues along the north side of Encanto Boulevard. Both sites have good pedestrian connections to Desert Sky Mall and are adjacent to the Desert Sage branch of the Phoenix Library, providing a strong link to another community facility. However, the sites were eliminated because they are not located on a major arterial street

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and would require the rerouting of seven of eight transit routes to access the site. Additionally, neither site has a strong connection to existing or planned transit corridors and poor visibility from highly utilized areas.

Table 4.3 *Alternative Transit Center Site Issues*

Site #	Acres	Issues (Areas of Concern)	Score
1	**4.2 ±**	**Selected for further analysis**	**42**
2	**4.1 ±**	**Selected for further analysis**	**50**
3	1.8 ±	Small linear station. Limited ability to develop adequate bus staging and layover areas. Little room for expansion or additional amenities. Mid-block location lacks opportunities for buses to make protected left-turn movements onto Thomas Rd	39
4	**6.9 ±**	**Selected for further analysis**	**42**
5	14.1 ±	Large site, more land than is needed for a joint transit center and park-and-ride facility at this location. Property has increased zoning – C-2 with a height and density waiver; development interest in multi-family residential. Not convenient for future high capacity transit on Thomas Rd. Two of eight routes currently serving the area pass by the site. Not at crossroads of major transit activity 79th Ave and Encanto Blvd are both half-mile streets, not major arterial streets.	34
6	13.4 ±	Large site, more land than is needed for a joint transit center and park-and-ride facility at this location. Not convenient for future high capacity transit on Thomas Rd. Site is adjacent to large stormwater retention area to which the entire Desert Sky Mall shopping center site drains. Size/location of the site may be better suited for a revenue-generating land use. Two of eight routes currently serving the area pass by the site. Not at crossroads of major transit activity. 79th Ave and Encanto Blvd are both half-mile streets, not major arterial streets.	34
7	4.7 ±	Not convenient for future high capacity transit on Thomas Rd. One of eight routes currently serving the area pass by the site. Not at crossroads of major transit activity. Encanto Blvd is half-mile street, not a major arterial street.	35
8	4.2 ±	L-shape site may be difficult to develop efficiently. Not convenient for future high capacity transit on Thomas Rd. One of eight routes currently serving the area pass by the site. Not at crossroads of major transit activity. Encanto Blvd is half-mile street, not a major arterial street.	33
9	12.6 ±	Large site, more land than is needed for a joint transit center and park-and-ride facility at this location. Not convenient for future high capacity transit on Thomas Rd. Commercial establishments interested in developing the site. Potential impacts to adjacent residential development.	36

<u>No-Build Alternative</u>

The No-Build alternative consists of the continued operation of the existing Desert Sky Transit Center without improvement. As discussed in the Needs Assessment

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section, this alternative is undesirable as current transit operations have outgrown the existing leased 0.25-acre site. The transit center suffers from bus overcrowding and limited space for layovers during peak periods; a lack of transit operative support services, such as break areas and restrooms; on-site security; and minimal passenger amenities such as adequate wayfinding signage; on-site customer service and fare media sales. A larger site that can accommodate traditional transit center features and amenities is necessary.

Site Selection

Three sites were identified during the Preliminary Site Evaluation for further analysis: sites 1, 2, and 4.

Site 2, a 4.1-acre parcel located at the southeast corner of 79th Avenue and Thomas Road, received the maximum score of 50/50 in the Preliminary Site Evaluation demonstrating that it meets all 10 evaluation criteria. Site 2 is the preferred site for the Desert Sky Transit Center as it offers the following:

- *Convenient access to future high capacity transit on Thomas Rd.*
- *Five of eight routes currently serving the area pass by the site and the remaining three can be easily modified to serve the site.*
- *Crossroads of major transit activity.*
- *Adequate size for current and future transit needs.*
- *Commercial properties surround the site; minimal impact to adjacent properties.*
- *Signalized intersection at 79th Avenue/Thomas Road.*
- *Close proximity to commercial activity.*
- *Close proximity to existing transit center; minimal disruption to passengers and transit routes.*
- *Compatible with the potential light rail corridor along 79th Avenue.*

Sites 1 and 4 both scored 42/50 in the Preliminary Site Evaluation. Site 1 is located Thomas Road, midblock on the north side between 79th and 75th avenues and out scored Site 4 in two key areas: proximity to existing and future transit corridors and visibility and attractiveness to transit riders. Additionally, Site 1 is served by traffic signal which could help facilitate left-turns into the site. However, this site is located adjacent to an existing single-family residential neighborhood. As the site is long and narrow, opportunities to buffer neighborhood from the transit operations through site design would be limited. Additionally, the site is located approximately 1/8-mile east of 79th Avenue, a potential future light rail corridor, which could be problematic for future rail to bus connections.

Site 4, a 6.9-acre parcel located on the east side of 79th Avenue between Thomas and Encanto roads, is the largest of the three sites selected for further analysis. The additional land could be reserved for future expansion, developed with a larger park-and-ride facility, or part of the land could be co-developed with METRO if 79th Avenue becomes a light rail corridor. As the site is surrounded by non-residential land uses, a transit center is more compatible on Site 4 than on Site 1.

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Consequently, Site 4 is the recommended alternative site and Site 1, the second alternative.

Recommendation

Based on the data and analysis presented, Staff recommends initiating environmental studies, land acquisition and preliminary site design for a new Desert Sky Transit Center located on the 4.1-acre parcel at the southeast corner of 79th Avenue and Thomas Road.

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Attachment D - Desert Sky NEPA Approval

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U.S. Department
of Transportation
**Federal Transit
Administration**

REGION IX
Arizona, California,
Hawaii, Nevada, Guam
American Samoa,
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AUG 21 2012

Mr. Neal Young
Interim Public Transit Director
Phoenix Public Transit Department
302 North First Avenue, Suite 900
Phoenix, AZ. 85003

Re: Approval of Categorical Exclusion for the Desert Sky Transit Center

Dear Mr. Young: Neal

The Federal Transit Administration has completed its review of your letter, dated June 18, 2012, requesting a National Environmental Policy Act (NEPA) finding for the Desert Sky Transit Center project. Based on your letter and the supporting documentation submitted with your letter, we find that the project qualifies as a Categorical Exclusion under 23 CFR 771.117(d)(10), *"Construction of bus transfer facilities."*

Your submission demonstrates that this project satisfies all applicable criteria for this Categorical Exclusion. In particular, this review finds that the project would not result in: significant environmental impacts that cannot be mitigated to a less-than-significant level; relocation of people or businesses; induced growth; significant air, water, traffic, or noise impacts; impacts to wetlands, endangered species or other biological resources; significant impacts to cultural, recreational or historic resources.

If you have any questions about this review, please contact Paul Page at (415) 744-2734.

Sincerely,

Leslie T. Rogers
Regional Administrator

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Attachment E—Compliance Monitoring Checklist

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Title VI Compliance Monitoring Checklist
Federal Transit Administration Review Area

As the primary recipient of Federal Transit Administration (FTA) funding for the Phoenix/Mesa UZA, the city of Phoenix Public Transit Department is required to ensure that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participating in, or denied the benefits of, or be subject to discrimination under any program, or activity receiving federal financial assistance. Per federal requirements, primary recipients and subgrantees must ensure that federally supported transit services and related benefits are distributed in an equitable manner.

Title VI Compliance Monitoring Checklist—To be utilized in the performance of subgrantee oversight reviews

- ☐ System-wide service standards and system-wide service policies, whether existing or new (i.e., adopted by the provider since the last submission), for each specific fixed-route mode provided?
- ☐ A copy of the provider's Title VI notice to the public (and its location) that indicates the recipient complies with Title VI, and informs members of the public of the protections against discrimination afforded by Title VI?
- ☐ A copy of the provider's instructions to the public regarding how to file a Title VI discrimination complaint, including a copy of the complaint form?
- ☐ A list of any public transportation-related Title VI investigations, complaints, or lawsuits filed with the provider since the time of the last submission?
- ☐ A public participation plan that includes an outreach plan to engage minority and limited English proficient populations, as well as a summary of outreach efforts made since the last Title VI Program submission.
- ☐ A copy of the provider's plan for providing language assistance to persons with limited English proficiency, based on the DOT LEP Guidance?
- ☐ For providers that have transit-related, non-elected planning boards, advisory councils or committees, or similar bodies, the membership of which is selected by the provider, a table depicting the racial breakdown of the membership of those committees, and a description of efforts made to encourage the participation of minorities on such committees or councils?
- ☐ If the provider has constructed a facility, such as a vehicle storage facility, maintenance facility, operation center, etc., a copy of the Title VI equity analysis conducted during the planning stage with regard to the location of the facility?
- ☐ Additional information as specified in FTA C 4702.1B, Chapter IV?

[FTA C 4702.1B, Chap. III-2 and 3]

***If the transit provider operates 50 or more fixed route vehicles in peak service**, does the provider's Title VI program or program <u>also</u> contain:*

- ☐ A demographic analysis of the service area, including demographic maps and charts completed since submission of the last Title VI Program that contains demographic information and service profiles?
- ☐ Data regarding customer demographics and travel patterns, collected from
- ☐ passenger surveys?
- ☐ Results of the monitoring program of service standards and policies and any action taken, including documentation (e.g., a resolution, copy of meeting minutes, or similar documentation) to verify the

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board's or governing entity or official(s)'s consideration, awareness, and approval of the monitoring results?

- ☐ A description of the public engagement process for setting the "major service change policy" and disparate impact policy?
- ☐ A copy of board meeting minutes or a resolution demonstrating the board's or governing entity or official(s)'s consideration, awareness, and approval of the major service change policy and disparate impact policy?
- ☐ Results of equity analyses for any major service changes and/or fare changes implemented since the last Title VI Program submission?
- ☐ A copy of board meeting minutes or a resolution demonstrating the board's or governing entity or official(s)'s consideration, awareness, and approval of the equity analysis for any service or fare changes required by FTA C 4702.1B?

[FTA C 4702.1B, Chap. IV-3 and 4]

- ☐ Does the provider have a copy of public information on its Title VI obligations, including protections against discrimination? Has staff posted such information on the provider's Web site; on posters, comment cards, or flyers placed at stations, bus shelters, and in transit vehicles; and in public areas of the provider's office(s), including the reception desk, meeting rooms, etc.?

[FTA C 4702.1B, Chap. III-4]

Do the provider's public notices include:

- ☐ A statement that the provider operates programs without regard to race, color, and national origin?
- ☐ A description of the procedures that members of the public should follow to request additional information on the provider's nondiscrimination obligations?
- ☐ A description of the procedures that members of the public should follow to file a discrimination complaint against the provider?

[FTA C 4702.1B, Chap. III-4]

- ☐ Has the provider integrated the content and considerations of Title VI, the Executive Order on LEP, and the DOT LEP Guidance into the established public participation plan or process (i.e., the document that explicitly describes the proactive strategies, procedures, and desired outcomes that underpin the provider's public participation activities)?

[FTA C 4702.1B, Chap. III-5]

- ☐ Has the provider taken reasonable steps to ensure meaningful access to benefits, services, information, and other important portions of their programs and activities for individuals who are limited-English proficient (LEP)?

[FTA C 4702.1B, Chap. III-6]

- ☐ Does the provider use the information obtained in the Four Factor Analysis to determine the specific language services that are appropriate?

[FTA C 4702.1B, Chap. III-7]

- ☐ The number or proportion of LEP persons eligible to be served or likely to be encountered by a program, activity, or service of the provider?
- ☐ The frequency with which LEP persons come in contact with the program?

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- ☐ The nature and importance of the program, activity, or service provided by the provider to people's lives?
- ☐ Resources available to the provider and costs?
- ☐ In addition to the number or proportion of LEP persons served, does the provider's analysis identify, at a minimum:
- ☐ How LEP persons interact with the provider?
- ☐ Identification of LEP communities, and assessing the number or proportion of LEP persons from each language group to determine the appropriate language services for each language group?
- ☐ The literacy skills of LEP populations in their native languages, in order to determine whether translation of documents will be an effective practice?
- ☐ Whether LEP persons are underserved by the provider due to language barriers?

Does the provider's LEP Plan, at a minimum:

- ☐ Include the results of the Four Factor Analysis, including a description of the LEP population(s) served?
- ☐ Describe how the provider offers assistance services by language?
- ☐ Describe how the provider offers notices to LEP persons about the availability of language assistance?
- ☐ Describe how the provider monitors, evaluates, and updates the language access plan?
- ☐ Describe how the provider trains employees to provide timely and reasonable language assistance to LEP populations?
- ☐ Has the transit provider developed quantitative standards for all fixed route modes of operation for the indicators listed below:
- ☐ Vehicle load expressed, for example, as the ratio of passengers to the total number of seats on a vehicle expressed in terms of peak and off-peak times?
- ☐ Vehicle headway expressed, for example, for peak and off-peak service as an increment of time?
- ☐ An on-time performance standard with a defined level of performance, expressed as a percentage?
- ☐ Service availability as a general measure of the distribution of routes within the transit provider's service area?

[FTA C 4702.1B, Chap. IV-6]

- ☐ Has the transit provider developed a policy for each of the following service indicators:
- ☐ How amenities (e.g., benches, seats, shelters, signs) are distributed and sited, and the manner transit users have equal access to those amenities?
- ☐ The process by which transit vehicles are placed into service in depots and on routes throughout the transit provider's system?

[FTA C 4702.1B, Chap. IV-6 and 7]

If the transit provider operates 50 or more fixed route vehicles in peak service, *does the provider collect and analyze racial and ethnic data as described below:*

- ☐ Demographic and service profile maps and charts after each decennial census and prior to proposed service reductions or eliminations?

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- ☐ A demographic profile comparing minority riders and non-minority riders, and trips taken by minority riders and non-minority riders?
- ☐ Fare usage by fare type among minority users and low-income users?
- ☐ Does the provider have a Title VI complaint form? Are the form and procedure for filing a complaint available on the provider's website? [FTA C 4702.1B, Chap. III-5]
- ☐ Does the provider notify the public that they may file discrimination complaints directly with the provider? [FTA C 4702.1B, Chap. III-5]
- ☐ Are the provider's notices detailing a recipient's Title VI obligations and complaint procedures translated into languages other than English, as needed, and consistent with the DOT LEP Guidance and the recipient's language assistance plan? [FTA C 4702.1B, Chap. III-4]
- ☐ Has the provider prepared and maintained a list of alleged discrimination on the basis of race, color, or national origin? [FTA C 4702.1B, Chap. III-5]
- ☐ Does the list include: [FTA C 4702.1B, Chap. III-5]
- ☐ Active investigations conducted by entities other than FTA?
- ☐ Lawsuits and complaints naming the provider?
- ☐ The date that the investigation, lawsuit, or complaint was filed?
- ☐ A summary of the allegation(s)?
- ☐ The status of the investigation, lawsuit, or complaint?
- ☐ Actions taken by the recipient in response, or final findings related to, the investigation, lawsuit, or complaint?

If the transit provider operates 50 or more fixed route vehicles in peak service, *does the provider monitor the performance of their transit system relative to system-wide service standards and service policies (i.e., vehicle load, vehicle assignment, transit amenities, etc.) not less than every three years using the following method:*

- ☐ Select a sample of minority and non-minority routes from all modes of service provided, e.g., local bus, bus rapid transit, light rail, etc.?
- ☐ Assess the performance of each minority and non-minority route in the sample for each of the transit provider's service standards and service policies?
- ☐ Compare the transit service observed in the assessment to the transit provider's established service policies and standards?
- ☐ Analyze why any discrepancies exist, and take steps to reduce the potential effects?
- ☐ Evaluate their transit amenities policy to ensure amenities are being distributed throughout the transit system in an equitable manner route in the sample for each of the transit provider's service standards and service policies?
- ☐ Develop a policy or procedure to determine whether disparate impacts exist on the basis of race, color, or national origin, and apply that policy or procedure to the results of the monitoring activities?
- ☐ Brief and obtain approval from the transit providers' policymaking officials, generally the board of directors or appropriate governing entity responsible for policy decisions regarding the results of the monitoring program?

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- ☐ Submit the results of the monitoring program as well as documentation (e.g., a resolution, copy of meeting minutes, or similar documentation) to verify the board's or governing entity or official(s)'s consideration, awareness, and approval of the monitoring results to FTA every three years as part of the Title VI Program?

[FTA C 4702.1B, Chap. IV-9 and 10]

If the transit provider operates 50 or more fixed route vehicles in peak service, *does the provider:*

- ☐ Conduct a service equity analysis for those service changes that meet or exceed the transit provider's "major service change policy"?
- ☐ Define and analyze the change between the existing and proposed service levels that would be deemed significant?
- ☐ Establish a threshold for determining when statistically significant disparity occurs, (maybe) as a statistical percentage of impacts borne by minority populations compared to impacts borne by non-minority populations?
- ☐ Engage the public in the decision making process to develop the major service change policy and disparate impact policy?
- ☐ Describe the dataset(s) the transit provider will use in the service equity analysis and describe what techniques and/or technologies were used to collect the data?
- ☐ Evaluate the impacts of proposed service changes on minority populations using the framework in FTA C 4702.1B, Chap. IV-14 thru IV-16?
- ☐ Evaluate proposed service and fare changes to determine whether low-income populations will bear a disproportionate burden of the changes?
- ☐ Evaluate the effects of fare changes on low-income populations in addition to Title VI-protected populations?
- ☐ Analyze any available information generated from ridership surveys indicating whether minority and/or low-income riders are disproportionately more likely to use the mode of service, payment type, or payment media that would be subject to the fare change?
- ☐ Evaluate the impacts of their proposed fare changes (either increases or decreases) on minority and low-income populations separately, using the framework in FTA C 4702.1B, Chap. IV-20 and IV-21?

[FTA C 4702.1B, Chap. IV-10 thru IV-21]

If the transit provider operates fewer than 50 fixed route vehicles in peak service, *has each analytical assessment been adequate enough to evaluate the possible occurrence of any disproportionately high and adverse effects on minority as well as on low-income riders? [FTA Circular 4702.1B, Chap. IV-11 and IV-21]*

If the provider determines that a disparate impact exists for a proposed fare change, does the provider explain how that change meets a substantial need that is in the public interest? Also, does the provider explain how alternative strategies would have more severe adverse effects than the preferred alternative? [Title VI Service and Fare Equity Analysis Questionnaire]

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Attachment F— 2018 Monitoring Report

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City of Phoenix

Title VI Service Monitoring Report

June 2018

City of Phoenix
PUBLIC TRANSIT DEPARTMENT

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Introduction

The purpose of this document is to report the results of the City of Phoenix Public Transit Department Title VI Service Monitoring Program. This program was undertaken in June 2018 to identify disparities in the level and quality of City of Phoenix Public Transit Department operated transit service provided to different demographic groups, in particular minority populations. This report also reviews the siting of transit amenities provided to different demographic groups in the City of Phoenix.

Title VI of the Civil Rights Acts of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance. Federal Transit Administration (FTA) Title VI guidelines require the City of Phoenix to conduct service monitoring at least once every three years to compare the level and quality of service provided to predominantly minority areas with service provided in other areas. This purpose of this evaluation is to ensure that service and policy changes result in equitable service.

This report will evaluate bus services and the siting of transit amenities in an objective manner to identify the potential for adverse, disproportionately high, or disparate impacts to minority populations. Per FTA requirements, this report will be utilized to provide suggested corrective actions for consideration, awareness and approval by the City of Phoenix Public Transit Department Director and the City of Phoenix Council.

The following Title VI service and amenity analysis addresses each of the program monitoring requirements set forth by the FTA by comparing the level and quality of service provided to predominantly minority areas with service provided in other areas to ensure that the end result of policies and decision-making reflects equitable service.

Service distribution and service performance are assessed separately. System performance is measured and evaluated against set standards. Service distribution is treated as a relative measure. Instead of standards, the proximity of service to populations is compared to assure that there is equal or more service available to minority populations.

Guidelines: The City of Phoenix Title VI Service Monitoring Program is guided by FTA Circular 4702.1B, Chapters 4-9, the Valley Metro Regional Transit Standards and Performance Measures, the City of Phoenix Title VI Program, the Valley Metro Title VI Procedures Manual, and the City of Phoenix Title VI Policy Major Service Change Service Equity Evaluation Procedures Manual.

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Per FTA Circular 4702.1B Chapter IV guidance, providers of public transportation that operate 50 or more fixed route vehicles in peak service and are located in a UZA of 200,000 or more in population are required to monitor the performance of their transit system relative to their system-wide service standards and service policies using the following method:

1. Select a sample of minority and non-minority routes from all modes of service provided. The sample shall include routes that provide service to predominantly minority areas and non-minority areas.

2. Assess the performance of each minority and non-minority route in the sample for each of the transit provider's service standards and service policies.

3. Compare the transit service observed in the assessment to the transit provider's established service policies and standards.

4. Analyze any route that exceeds or fails to meet the standard or policy, depending on the metric measured to determine why the discrepancies exist, and take steps to reduce the potential effects.

5. Evaluate their transit amenities policy to ensure amenities are being distributed throughout the transit system in an equitable manner.

6. Develop a policy or procedure to determine whether disparate impacts exist on the basis of race, color, or national origin, and apply that policy or procedure to the results of the monitoring activities.

7. Brief and obtain approval from the transit providers' policy-making officials regarding the results of the monitoring program.

8. Submit the results of the monitoring program as well as documentation to verify the policy board's or governing entity's consideration, awareness, and approval of the monitoring results to FTA every three years as part of the Title VI program.

9. Monitoring shall be conducted, at a minimum, once every three years.

Phoenix Public Transit Service Overview

Current Bus Service: The City of Phoenix operates thirty-eight local, four circulators and six RAPID routes. Some of these services extend into ten neighboring jurisdictions. In addition, the City of Phoenix also purchases the service of eleven local and fourteen express routes from Valley Metro. Those routes too are included in this analysis, but

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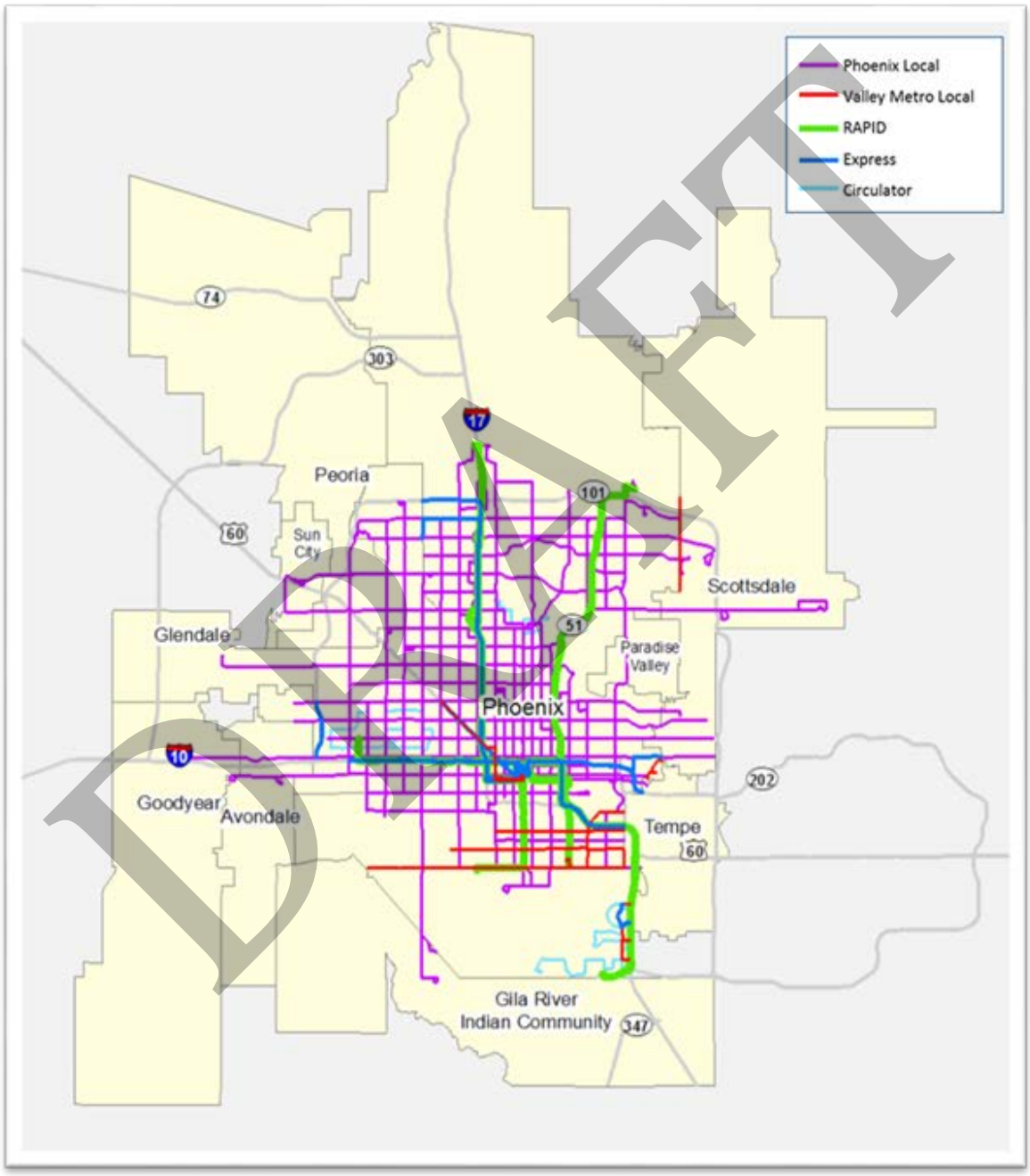
only those portions within the Phoenix jurisdiction. ***Figure 1: Phoenix Operated and Purchased Bus Service*** illustrates the routes assessed in this report.

Figure 1: Phoenix Operated and Purchased Bus Service



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Recent Service Changes: In August 2015, Phoenix voters approved Transportation 2050: a 35-year comprehensive plan to improve existing transit services along with other multi-modal improvements. The Public Transit Department began implementation of the plan in October 2016 with a major increase in span of service and weekend frequencies. As of June 2018, Phoenix has increased bus service by 26% since implementation. The following summarizes the major bus service changes since 2016:

- All local routes expanded early morning and late night service span to match light rail.
- All local routes frequency increased to a minimum of 30 minutes on weekdays and weekends.
- Routes 3, 19, 29, and 50 midday frequencies were increased to 15 minutes on weekdays from 6 a.m. to 7 p.m.
- Route 19 was extended to Happy Valley Road.
- Route 39 was extended to Dreamy Draw PNR.
- Route 51 was extended on 51st Avenue from Lower Buckeye Road to Baseline Road and replaced Route 251 south of Baseline Road to serve the Gila River Indian Community.
- Route 83 was extended from Camelback Road through Glendale and Peoria to the Arrowhead Transit Center.
- Route 122 was extended to connect ASU West Campus and Light Rail at 19th Ave/Dunlap Station.
- New Route 32 was introduced in April 2016 and extended into Tempe at Priest/Baseline in April 2018.
- New South Mountain East RAPID connects the East Baseline PNR to Downtown.
- Routes 19 and 60 returned to pre-LRT-construction service and the 19C temporary connector service was discontinued.

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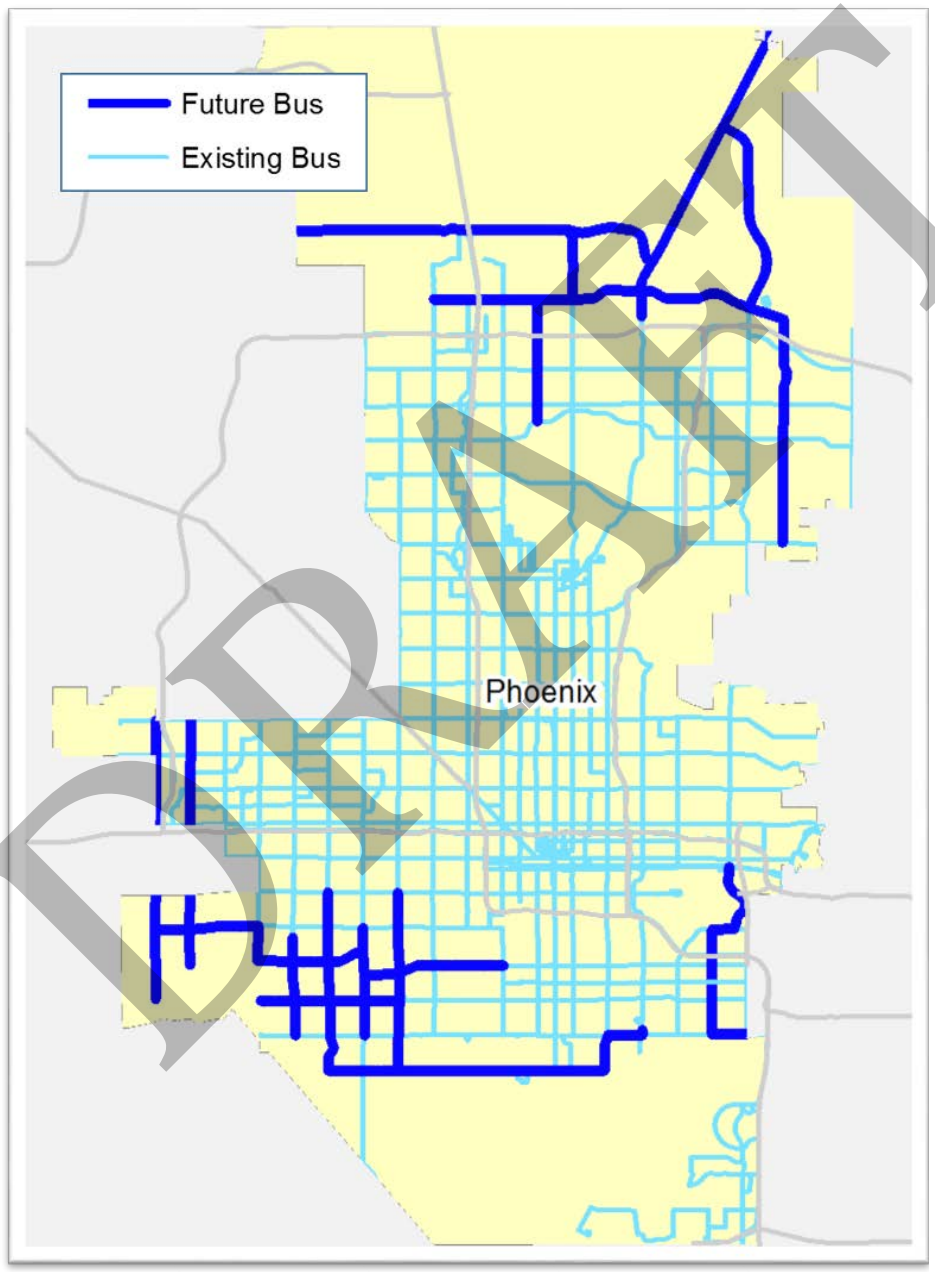
Planned Service Changes: The T2050 plan provides for new and extended routes to complete service coverage to all major population centers in the city. ***Figure 2: Phoenix Planned Bus Service*** illustrates voter approved planned bus service.

Figure 2: Phoenix Planned Bus Service



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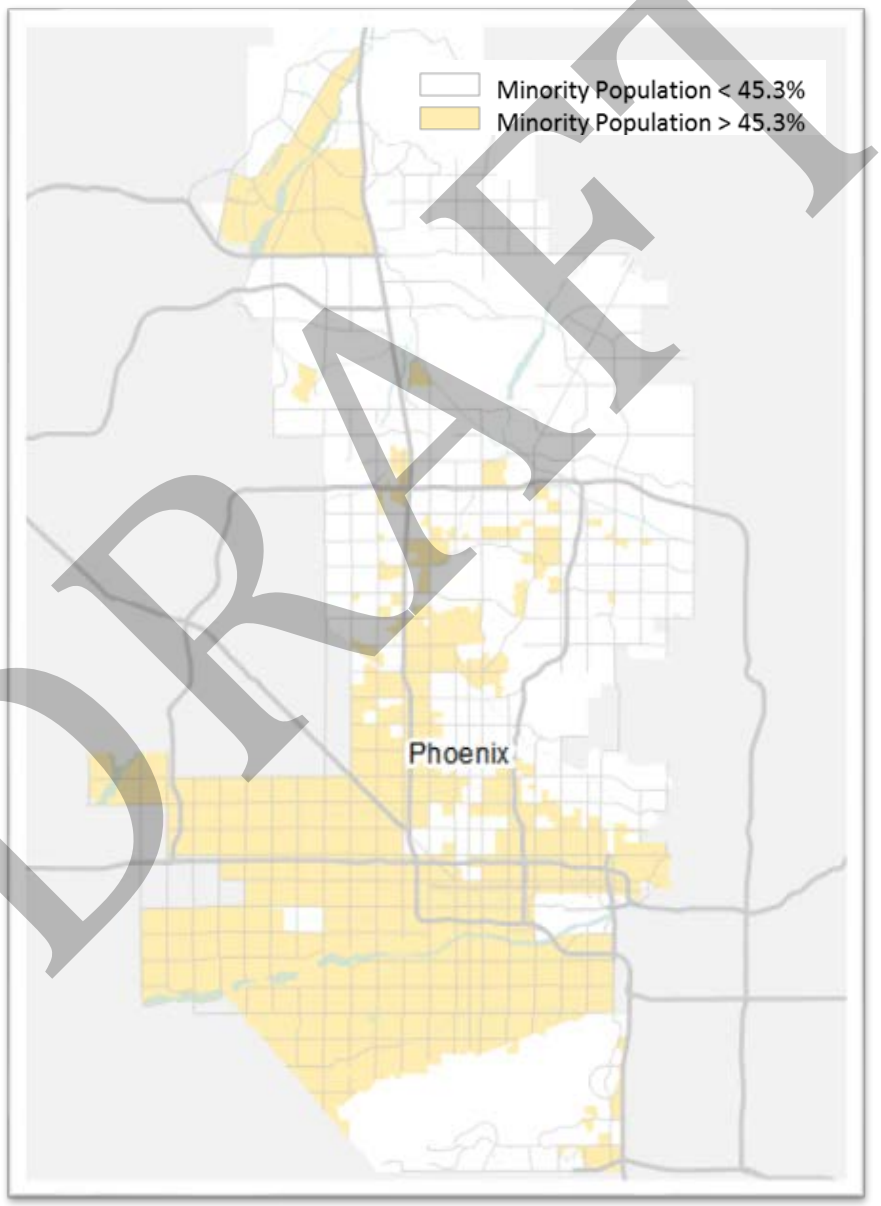
Service Area Minority Population**:** The most recent estimates have Phoenix at a total population of 1.6 million with a minority population of 0.9 million, or 56%. The Maricopa County region is 45% minority. For purposes of this report, Census Block Groups with minority population above the regional average are categorized as "Minority Areas". This designation is used to categorize bus revenue miles and bus stops as minority or non-minority. Minority census block groups are indicated in ***Figure 3: Minority Areas***.

Figure 3: Minority Areas



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Service Distribution Equity Assessment

The overall system development is guided by the Transportation 2050 plan and the decision making of our elected officials. Public Transit Department staff monitor ridership trends and route performance to implement service changes where there is greatest demand. This results in a large proportion of the service capacity distributed to minority and low income areas. For Title VI monitoring, proximity to bus service is measured to assess that minority populations have equal or proportionate availability and access. The distribution of bus service relative to minority population is illustrated in ***Figure 4: Bus Service and Minority Population.***

For the purposes of this analysis, all routes operated by or in the City of Phoenix are assessed. To ensure that all Phoenix operated routes are distributed equitably, the assessments encompass the entire route length including segments operating in other jurisdictions. For routes serving Phoenix but operated by another agency, only those segments within Phoenix are assessed.

Service Area Vs Walkable Area: For purposes of this analysis, the Service Area is defined as those areas within ¼ mile of an existing bus route. Within the Service Area, the Walkable Area is defined as that area along the roadway network to a length of ¼ of a mile from existing bus stops. The Walkable Area represents the area that is actually accessible to the population. ESRI's network analyst tool was used to determine this. The concepts are illustrated in ***Figure 5: Service Area Vs Walkable Area***.

Service Distribution Summary and Assessment: The Phoenix Service Area covers 61% of the total population and 67% of the minority population. Walkable access is available to 43% of the total population and 48% of the minority population. These figures are summarized in ***Table 1: Local Bus Service Availability***. The table shows that in Phoenix, a higher percentage of minority population than non-minority population are within the local route service area and the walkable service area.

While service availability represents coverage, revenue miles represents the volume of service. ***Table 2: Local Bus Revenue Mile Distribution*** illustrates the distribution of planned revenue miles between minority and non-minority areas. In Phoenix, 79% of the revenue miles are operated in minority areas versus 21% in non-minority areas. Comparing to the percentage of minority population within the bus service area at 63%, minority population are receiving more revenue miles per person than non-minority areas.

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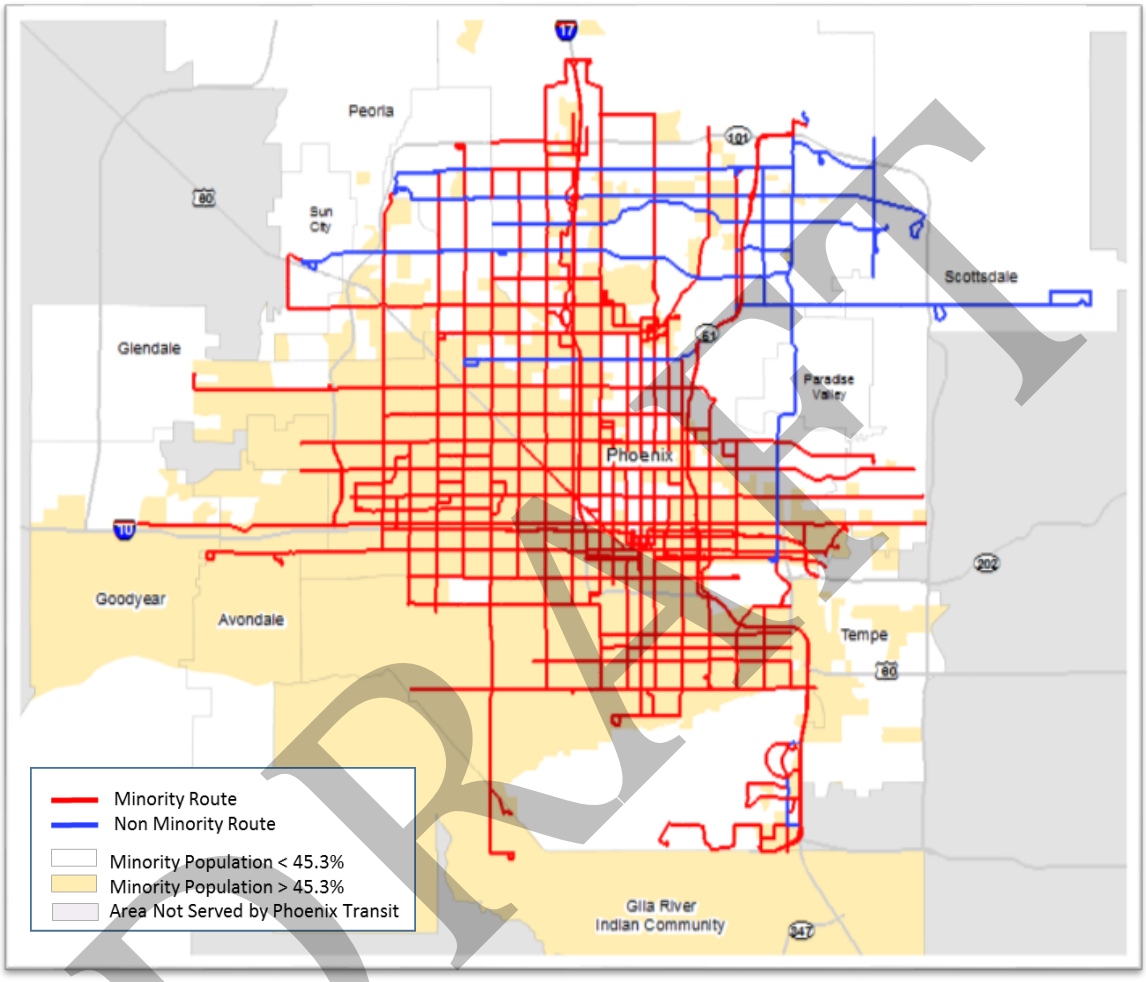
Figure 4: Bus Service and Minority Population Map



Per FTA guidance, Minority Routes are those with more than 30% of revenue miles in areas with percent minority population higher than the regional average.

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Figure 5: Service Area Vs Walkable Area

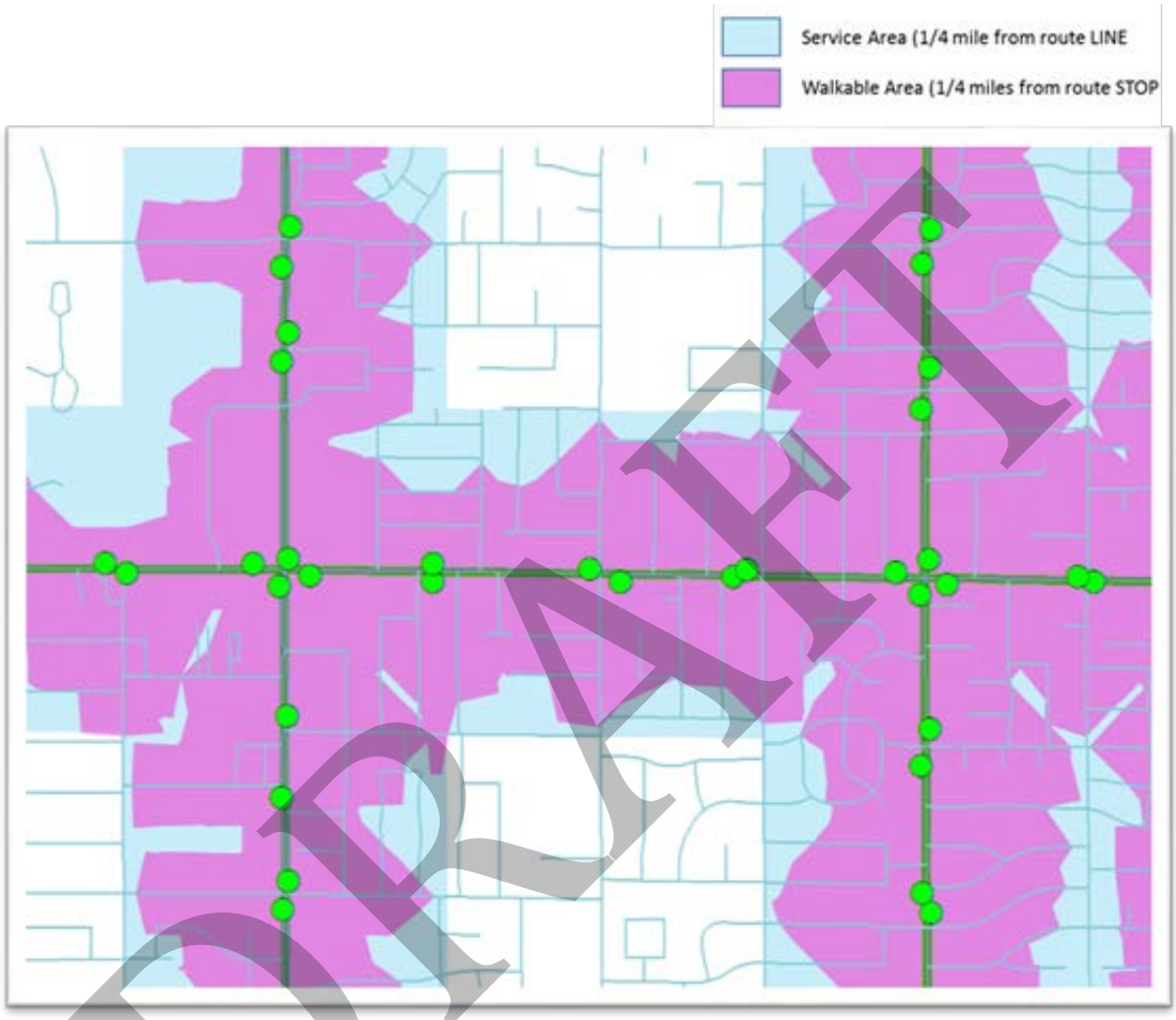

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Table 1: Local Bus Service Availability

	Total Population	Minority Population	Non-Minority Population	Minority Population / Total Population	Non-Minority Population / Total Population
Total Phoenix Population	1,605,070	906,827	698,243	**56.5%**	**43.5%**
Service Area Population	971,957	607,863	364,094	**62.5%**	**37.5%**
Service Area Population / Total Population	**60.6%**	**67.0%**	**52.1%**		
Walkable Population	688,933	434,264	254,669	**63.0%**	**37.0%**
Walkable Population / Total Population	**42.9%**	**47.9%**	**36.5%**		

Service Area Pop = 1/4 Mile from local route LINE

Walkable Pop = 1/4 Mile along roads from STOP

Table 2: Local Bus Revenue Mile Distribution

	Total Service Area	Minority Areas	Non-Minority Areas	% Minority	% Non-Minority
Local Daily Revenue Miles	56,053	44,439	11,614	**79.3%**	**20.7%**
Service Area Population	971,957	607,863	364,094	**62.5%**	**37.5%**
Revenue Miles of Service per 1,000 Service Area Population	57.7	73.1	31.9		

Service Area Pop = 1/4 Mile from local route LINE

Minority Areas = Census Block Groups with percent minority population higher than the regional average.

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Service Performance Equity

To monitor the performance of minority routes versus non-minority routes per FTA guidance, a sample was taken of routes by mode and their level of service, average peak load, bus stop shade availability, and on time performance.

Route Sampling: A random sample of high ridership minority routes and non-minority routes were selected for the comparison as indicated in ***Table 3: Sampled Routes*.**

Table 3: Sampled Routes

	Minority Routes	Non-Minority Routes
Local	7, 13, 27, 32, 51, 83	44, 138, 170
Circulator	SMART, ALEX	NA
RAPID	SMW	I10E

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Minority Routes: Per FTA guidance, these are local routes with more than 30% revenue miles in Minority Areas and express routes with more than 30% catchment areas in Minority Areas. By this measure, thirty-eight of local, all of the circulator and four of the RAPID routes are categorized as "Minority Routes". List of Minority Routes is presented in ***Table 4: Minority Route Designation***.

Table 4: Minority Route Designation

Local Routes

	% Minority Revenue Miles		% Minority Revenue Miles
Route 0	61%	Route 50	67%
Route 1	95%	Route 51	82%
Route 3	99%	Route 52	100%
Route 7	45%	Route 56	72%
Route 8	67%	Route 59	69%
Route 10	75%	Route 60	72%
Route 12	50%	Route 61	59%
Route 13	78%	Route 67	70%
Route 15	74%	Route 70	71%
Route 16	61%	Route 72	10%
Route 17	83%	Route 75	100%
Route 19	72%	Route 77	79%
Route 27	59%	Route 80	19%
Route 28	100%	Route 83	80%
Route 29	65%	Route 90	43%
Route 30	69%	Route 106	57%
Route 32	70%	Route 108	9%
Route 35	60%	Route 122	36%
Route 39	0%	Route 138	11%
Route 41	70%	Route 140	52%
Route 43	57%	Route 154	17%
Route 44	24%	Route 156	25%
Route 45	68%	Route 170	20%
Route 48	55%	Route 186	1%

Circulators

	% Minority Revenue Miles
ALEX	32%
DASH	95%
MARY	100%
SMART	99%

RAPIDs

	% Catchment Area Minority
SR51	23%
I10E	26%
SMW	100%
SME	95%
I10W	94%
I17	36%

= Minority Route

Source: 2012 - 2016 American Community Survey 5-year Estimates

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Performance Standards: Route operational performance is guided by the Valley Metro Regional Transit Standards and Performance Measures (TSPM) as well as benchmarks developed by Phoenix staff. The performance of each minority and non-minority route sampled were assessed against service standards and service policies.

According to the Valley Metro Regional Transit Standards and Performance Measures, local routes are defined as either Local or Key Local routes. The Key Local bus route designation is based on the following metrics:

- Low-income population served
- Zero-auto ownership households served
- Past transit ridership (i.e., highest ridership routes)

The process for determining key local routes includes comparing the percentage of low-income persons and zero-auto households within a quarter-mile of each local route with the average percentage of low-income persons and zero-auto households for all local bus routes in the Valley Metro System. High volume routes are defined as routes with more than 1 million annual weekday boardings.

In addition to the transit standards listed above, the City of Phoenix Public Transit Department also monitors, for all routes it operates, Maximum Load to Capacity Ratio (Maximum of all Max Loads), On Time Performance, Vehicle Assignment (Average Vehicle Age) and Percentage of Bus Stops with Shade. The standards are summarized in ***Table 5: Route Performance Standards*** and the results of the sample route assessment is summarized in ***Table 6: Sampled Route Performance.***

Table 5: Route Performance Standards

	Minimum Headway or Daily Trips	Minimum Span Week/ Sat/ Sun	Minimum Operating Days	Avg Max Load to Capacity Ratio	On-Time Performance	Average Vehicle Age (Max = 12yrs)	% Stops with Shade
Local	15 min peak / 30 min base	16 hrs/ 14 hrs/ 12 hrs	Mon - Sun	1.5	90%	6.1	100
Express / RAPID	4 trips AM / 4 trips PM	NA	Mon - Fri	1.0	90%	9.8	NA
Circulator	30 min	NA	Mon - Fri	1.35	90%	5.8	NA

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Table 6: Sampled Route Performance

Local

	Peak Headway	Service Span	Service days	Max Max Load to Capacity Ratio	On-Time Performance	Avg Vehicle Age	% Stops with Shade
Standard	30 min	16 hrs/ 14 hrs/ 12 hrs	Mon - Sun	1.50	90%	12 yrs (AVG = 6.1)	100%
Route 7	20	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.55	88%	4.6	63%
Route 13	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.53	92%	8	36%
Route 27	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.69	88%	4.1	56%
Route 32	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	1.33	91%	10.2	48%
Route 44	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.79	94%	3.5	77%
Route 51	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.81	92%	7.4	40%
Route 83	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.35	93%	6.7	33%
Route 138	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday	Mon - Sun	0.50	91%	7.1	67%
Route 170	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.66	93%	7.4	93%

Circulator

	Headway	Service Span	Service days	Max Max Load to Capacity Ratio (1)	On Time Performance	Avg Vehicle Age	% Stops with Shade (2)
Standard	30 min	NA	Mon - Fri	1.35	90%	12 yrs (AVG = 5.8)	NA
ALEX	60	6 am to 6 pm	Mon - Sun	NA	92%	5	NA
SMART	35	6 am to 6 pm	Mon - Sun	NA	92%	2	NA

RAPID

	Peak Trips	Service Span	Service days	Max Max Load to Capacity Ratio	On Time Performance	Avg Vehicle Age	% Stops with Shade (3)
Standard	4 trips AM / 4 trips PM	NA	Mon - Fri	1.0	90%	12 yrs (AVG = 9.8)	NA
I10E	10	5 - 8:30am	Mon - Fri	0.66	91%	0.91	NA
SMW	9	6 - 8am 3:30 - 5:30pm	Mon - Fri	0.50	93%	0.93	NA

= Minority Route = does not meet standard

(1) Circulator vehicles are not equipped with APC sensor to capture passenger load.
(2) Many Circulators do not have designated bus stops, instead passengers flag down the bus to board the vehicle.
(3) All Inbound bus stops for RAPID are Park and Rides and Transit Centers with shade.

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Service Performance Summary and Assessment

Peak Headway/Peak Trip:

Minority Local Routes: All sampled minority local routes are designated as Key Local Routes. The minimum standard for headway as a Key Local Bus is 15 minutes at peak hours. All six of our sampled routes equal or exceeded that standard ranging from eight to 15 minutes per trip.

Non-Minority Local Routes: All non-minority local routes are designated as Local Route. Minimum headway for Local routes is 30 minutes. Both of our sampled routes meet the headway requirement at 30 minutes.

Circulators: All circulators in the City of Phoenix are a free service. Minimum headway for circulator is 30 minutes. The headway for both Mary and ALEX (both Minority) is every 60 minutes. The headway for these routes were reduced due to the recession and reduced funding available to operate at every 30 minutes.

RAPID: Minimum daily trips for RAPID are 4 trips each in the AM and PM peak. South Mountain West has 5 trips in the AM and PM peak. SR51 has 13 trips in the AM and PM peak.

Minimum Span: All routes sampled meet minimum span requirements.

Minimum Operating Days: All routes sampled meet minimum operating days.

Average Maximum Load to Capacity Ratio: All routes sampled are below average maximum load to capacity ratio.

On Time Performance: The On Time Performance goal for the City of Phoenix is 90%. Four out of the six minority local routes are above the goal of 90%. All sampled Non-Minority Local routes and circulators meet the 90% goal.

Average Vehicle Age: City of Phoenix's goal on the average age of vehicle assigned to each route is to not exceed 12 years. All routes sampled meet this vehicle assignment standard. As summarized in ***Table 7: Average Vehicle Age by Service Type and Route Minority Status***, vehicles serving Minority Routes are newer than those serving Non-Minority routes except in the case of RAPID service.

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Table 7: Average Vehicle Age by Service Type and Route Minority Status

	All Routes	Local	RAPID	Circulator
Minority Routes	6.3	6.1	10.3	5.8
Non-Minority Routes	8.1	6.7	9.5	NA
All Routes	6.6	6.1	9.8	5.8

Percent Stops with Shade: None of the sampled routes has 100% shaded stop coverage. As indicated in ***Table 8: Bus Stop Shelters in Minority Vs Non-Minority Areas***, the percentage of shaded stops in Minority Areas was slightly lower than in Non-Minority Areas.

Table 8: Bus Stop Shelters in Minority Vs Non-Minority Areas

	All	Shaded	%Shaded
Minority Areas	2,538	1,575	62%
Non-Minority Areas	1,520	968	64%
All Bus Stops	4,058	2,543	63%

Deficiency Assessment/Recommendation

FTA guidance suggests an analysis of any route that exceeds or fails to meet the standard or policy, depending on the metric measured to determine why the discrepancies exist, and take steps to reduce the potential effects. It also instructs to evaluate the transit amenities policy to ensure amenities are being distributed throughout the transit system in an equitable manner.

Routes that did not meet the minimum standard are:

Peak Headway/Peak Trip: One circulator does not meet 30-minute frequency standard. Minimum headway for circulators is 30 minutes, the headway for ALEX (Minority) is every 60 minutes. Prior to the recession, circulators in Phoenix all ran every 30 minutes. In 2010, circulator services were reduced to every 60 minutes in Phoenix as a result of reduced funding. All other routes meet the 30-minute frequency standard.

The City of Phoenix Public Transit Department does have plans to increase circulator service by implementing 30-minute headway in the next five years.

On Time Performance**:** Two fixed routes, Route 7 and Route 27, fall below the 90 percent on-time performance standard.

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The City of Phoenix Public Transit Department will evaluate run times and work with our operating contractor to improve on time performance.

Percent Stops with Shade**:** Currently none of the bus routes in Phoenix have 100% shaded bus stop coverage. However, from the analysis, it was found that shaded versus non-shaded stops were near equitably distributed amongst both minority versus non-minority stops.

Shade structure installation is currently prioritized by stop boarding volume. Going forward, minority area status will be added as an additional prioritization factor for shade structure installation.

Summary

The City of Phoenix Public Transit Title VI Service Monitoring Report is being submitted to the City of Phoenix City Council for consideration, awareness, and approval. The results of this monitoring effort will also be submitted to the FTA per Title VI program guidance in FTA Circular 4702.1B.

City of Phoenix Public Transit Title VI service monitoring shall be conducted once every three years.

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Appendix A: Route Revenue Miles in Minority Areas 2018 vs 2015

Local

% Minority Revenue Miles

	2018	2015	Diff
0	61%	63%	(2%)
1	95%	94%	1%
3	99%	99%	(0%)
7	45%	55%	(10%)
8	67%	57%	11%
10	75%	56%	19%
12	50%	71%	(21%)
13	78%	70%	8%
15	74%	63%	11%
16	61%	57%	4%
17	83%	84%	(2%)
19	72%	59%	14%
27	59%	64%	(5%)
28	100%	100%	0%
29	65%	72%	(7%)
30	69%	66%	3%
32	70%	new route	NA
35	60%	74%	(14%)
39	2%	4%	(4%)
41	70%	75%	(5%)
43	57%	69%	(12%)
44	24%	18%	6%
45	68%	70%	(2%)
48	55%	87%	(32%)

	2018	2015	Diff
50	67%	64%	3%
51	82%	72%	10%
52	100%	100%	0%
56	72%	77%	(5%)
59	69%	62%	7%
60	72%	77%	(5%)
61	59%	57%	2%
67	70%	71%	(0%)
70	71%	76%	(5%)
72	10%	15%	(5%)
75	100%	100%	0%
77	79%	72%	7%
80	19%	24%	(6%)
83	80%	100%	(20%)
90	43%	53%	(9%)
106	57%	63%	(6%)
108	9%	16%	(7%)
122	36%	36%	(1%)
138	11%	4%	7%
140	52%	new route	NA
154	17%	14%	3%
156	25%	36%	(12%)
170	20%	22%	(2%)
186	1%	6%	(5%)

Circulator

% Minority Revenue Miles

	2018	2015	Diff
DASH	95%	95%	(0%)
ALEX	32%	36%	(3%)
MARY	100%	100%	0%
SMART	99%	97%	1%

RAPID

% Minority Population in Catchment Area

	2018	2015	Diff
SR51	23%	25%	(2%)
I10E	26%	33%	(7%)
SMW	100%	84%	16%
SME	95%	new route	NA
I10W	94%	79%	15%
I17	36%	37%	(1%)

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Appendix B: City of Phoenix Bus Local Routes by Minority Status and Bus Stop Shade

		All Stops			Stops in Non-Minority Areas			Stops in Minority Areas		
Route	Minority Route	Total Stops	Shade Structure	% with Shade Structure	Total Stops	Shade Structure	% with Shade Structure	Total Stops	Shade Structure	% with Shade Structure
0	YES	132	61	46%	58	16	28%	74	45	61%
1	YES	53	38	72%	2	2	100%	51	36	71%
3	YES	142	97	68%	6	5	83%	136	92	68%
7	YES	211	133	63%	114	71	62%	97	62	64%
8	YES	125	82	66%	49	32	65%	76	50	66%
10	YES	41	26	63%	5	3	60%	36	23	64%
12	YES	93	50	54%	37	14	38%	56	36	64%
13	YES	84	30	36%	10	3	30%	74	27	36%
15	YES	52	27	52%	14	10	71%	38	17	45%
16	YES	164	106	65%	59	44	75%	105	62	59%
17	YES	164	130	79%	24	18	75%	140	112	80%
19	YES	187	137	73%	65	48	74%	122	89	73%
27	YES	183	102	56%	68	43	63%	115	59	51%
28	YES	34	9	26%	4	-	0%	30	9	30%
29	YES	145	114	79%	40	37	93%	105	77	73%
30	YES	42	23	55%	4	3	75%	38	20	53%
32	YES	109	52	48%	23	15	65%	86	37	43%
35	YES	204	149	73%	81	61	75%	123	88	72%
39	NO	52	34	65%	51	33	65%	1	1	100%
41	YES	142	109	77%	37	25	68%	105	84	80%
43	YES	100	66	66%	44	29	66%	56	37	66%
44	NO	99	76	77%	73	58	79%	26	18	69%
45	YES	59	39	66%	-	-	NA	59	39	66%
48	YES	8	6	75%	-	-	NA	8	6	75%
50	YES	134	83	62%	55	30	55%	79	53	67%
51	YES	82	33	40%	11	5	45%	71	28	39%
52	YES	69	32	46%	-	-	NA	69	32	46%
56	YES	9	3	33%	4	2	50%	5	1	20%
59	YES	39	22	56%	1	1	100%	38	21	55%
60	YES	67	41	61%	24	15	63%	43	26	60%
61	YES	83	58	70%	-	-	NA	83	58	70%
67	YES	43	30	70%	-	-	NA	43	30	70%
70	YES	141	98	70%	56	45	80%	85	53	62%
72	NO	16	12	75%	16	12	75%	-	-	NA
75	YES	44	14	32%	-	-	NA	44	14	32%
77	YES	101	74	73%	4	3	75%	97	71	73%
80	NO	82	52	63%	61	35	57%	21	17	81%
83	YES	39	13	33%	-	-	NA	39	13	33%
90	YES	109	65	60%	57	34	60%	52	31	60%
106	YES	62	38	61%	23	10	43%	39	28	72%
108	NO	22	16	73%	15	10	67%	7	6	86%
122	YES	58	39	67%	32	18	56%	26	21	81%
138	NO	95	64	67%	82	54	66%	13	10	77%
140	YES	3	3	100%	2	2	100%	1	1	100%
154	NO	107	42	39%	89	34	38%	18	8	44%
156	NO	4	3	75%	1	1	100%	3	2	67%
170	NO	107	99	93%	77	70	91%	30	29	97%
186	NO	96	79	82%	92	76	83%	4	3	75%

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Appendix C: Route Performance

Local

	Peak Headway	Service Span	Service days	Max Max Load to Capacity Ratio	On-Time Performance	Avg Vehicle Age	% Stops with Shade
Standard	30 min	16 hrs/ 14 hrs/ 12 hrs	Mon - Sun	1.50	90%	12 yrs (AVG=6.1)	100%
Route 0	10	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	1.01	91%	5.3	46%
Route 1	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.20	88%	5	72%
Route 3	10	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.58	85%	5.7	68%
Route 7	20	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.55	88%	4.6	63%
Route 8	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.57	94%	4.7	66%
Route 10	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.40	85%	5	63%
Route 12	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.58	91%	5.8	54%
Route 13	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.53	92%	8	36%
Route 15	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.53	94%	12	52%
Route 16	15	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.80	92%	4.7	65%
Route 17	10	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.81	86%	6.2	79%
Route 19	12	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.84	93%	5.3	73%
Route 27	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.69	88%	4.1	56%
Route 28	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.22	96%	2	26%
Route 29	8	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.80	82%	6.1	79%
Route 30	30	4am - Midnight Weekdays 5am - 10pm Weekends	Mon - Sun	0.46	92%	8.8	55%
Route 32	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	1.33	91%	10.2	48%
Route 35	15	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	1.04	89%	4.5	73%
Route 39	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.30	95%	7.1	65%

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Appendix C: Route Performance

Local (Cont.)

	Peak Headway	Service Span	Service days	Max Max Load to Capacity Ratio	On-Time Performance	Avg Vehicle Age	% Stops with Shade
Standard	30 min	16 hrs/ 14 hrs/ 12 hrs	Mon - Sun	1.50	90%	12 yrs (AVG = 6.1)	100%
Route 41	10	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.75	86%	6.4	77%
Route 43	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.64	88%	8	66%
Route 44	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.79	94%	3.5	77%
Route 45	15	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.72	91%	8.7	66%
Route 48	30	5am - Midnight Weekdays 5am - Midnight Saturdays 5am - 10pm Sundays	Mon - Sun	0.37	91%	7.3	75%
Route 50	10	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	1.08	87%	4.6	62%
Route 51	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.81	92%	7.4	40%
Route 52	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	1.00	92%	7.5	46%
Route 56	15	4am - Midnight Weekdays 5am - 10pm Weekends	Mon - Sun	0.62	90%	8.2	33%
Route 59	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.68	92%	7	56%
Route 60	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.64	87%	5.4	61%
Route 61	15	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.64	92%	8.6	70%
Route 67	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.76	89%	6.8	70%
Route 70	15	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.77	88%	5.5	70%
Route 72	10	5am - 11pm Weekdays 7am - 11pm Saturdays 7am - 8pm Sundays	Mon - Sun	0.47	90%	6.1	75%
Route 75	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.84	90%	6.8	32%
Route 77	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.78	88%	7.7	73%
Route 80	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.93	89%	7.1	63%

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Appendix C: Route Performance

Local (Cont.)

	Peak Headway	Service Span	Service days	Max Max Load to Capacity Ratio	On-Time Performance	Avg Vehicle Age	% Stops with Shade
Standard	30 min	16 hrs/ 14 hrs/ 12 hrs	Mon - Sun	1.50	90%	12 yrs (AVG = 6.1)	100%
Route 83	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.35	93%	6.7	33%
Route 90	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.55	86%	7.2	60%
Route 106	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.62	90%	7.4	61%
Route 108	30	4am - Midnight Weekdays 5am - 10pm Weekends	Mon - Sun	0.45	94%	7.8	73%
Route 122	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.34	92%	7.3	67%
Route 138	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.50	91%	7.1	67%
Route 140	30	5am - 8:30pm Weekdays 7am - 8:30pm Saturdays No Sunday Service	Mon - Sun	0.22	97%	7.6	100%
Route 154	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.95	92%	7	39%
Route 156	30	5am - 9pm Weekdays 7am - 8:30pm Saturdays 7am - 7:30 p.m Sundays	Mon - Sun	0.49	94%	7.8	75%
Route 170	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.66	93%	7.4	93%
Route 186	30	4am - Midnight Weekdays 4am - 2am Friday & Saturday 5am - 11pm Sunday	Mon - Sun	0.56	97%	7.1	82%

= Minority Route = does not meet standard

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Appendix C: Route Performance

Circulator

	Headway	Service Span	Service days	Max Max Load to Capacity Ratio (1)	On Time Performance	Avg Vehicle Age	% Stops with Shade (2)
Standard	30 min	NA	Mon - Fri	1.35	90%	12 yrs (AVG = 5.8)	100%
ALEX	60	6 am to 6 pm	Mon - Sun	NA	92%	5	NA
DASH	12	6:30 am to 6:30 pm	Mon - Fri	NA	85%	16.6	NA
MARY	60	6 am to 6 pm	Mon - Sun	NA	93%	1.8	NA
SMART	35	6 am to 6 pm	Mon - Sun	NA	92%	2	NA

RAPID

	Peak Trips	Service Span	Service days	Max Max Load to Capacity Ratio	On Time Performance	Avg Vehicle Age	% Stops with Shade (3)
Standard	4 trips AM / 4 trips PM	NA	Mon - Fri	1.0	90%	12 yrs (AVG = 9.8)	100%
SR51	9	5 - 8:30am 3 - 6:00pm	Mon - Fri	0.72	79%	9.6	NA
I10E	10	5 - 8:30am 3 - 6:00pm	Mon - Fri	0.66	91%	9.5	NA
SMW	9	6 - 8am 3:30 - 5:30pm	Mon - Fri	0.50	93%	9.5	NA
SME	10	6 - 8am 3:30 - 5:30pm	Mon - Fri	0.25	94%	10.7	NA
I10W	10	5 - 8:30am 3 - 6:00pm	Mon - Fri	0.62	87%	10.5	NA
I17	8	5 - 8:30am 3 - 6:00pm	Mon - Fri	0.81	93%	9.5	NA

= Minority Route = does not meet standard

(1) Circulator vehicles are not equipped with APC sensor to capture passenger load.
(2) Many Circulators do not have designated bus stops, instead passengers flag down the bus to board the vehicle.
(3) All Inbound bus stops for RAPID are Park and Rides and Transit Centers with shade.

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Attachment G - 2014-2015 On-board Transit Survey Report

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2014-2015 Valley Metro

Onboard Survey

FINAL REPORT

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Prepared for:
Maricopa Association of Governments (MAG) and Valley Metro Transit System

Developed by:
ETC Institute

VALLEY METRO

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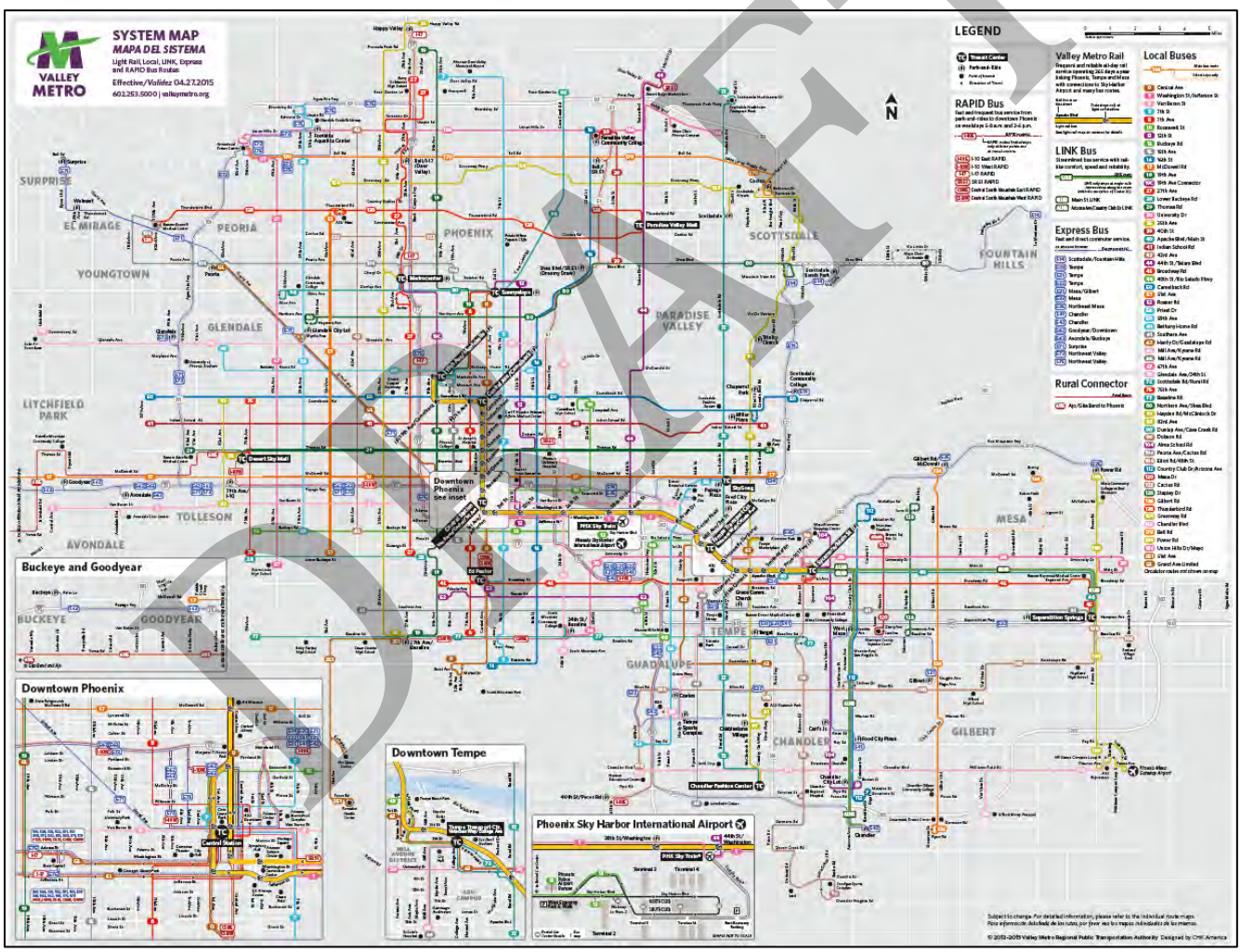
Acronyms and Abbreviations

APC	Automatic Passenger Counter
FTA	Federal Transit Administration
MAG	Maricopa Association of Governments
Project	Valley Metro On-Board Survey
QA/QC	Quality Assurance/Quality Control
RTD	Route, Time of Day, and Direction
SRRT	Survey Records Review Team
VSEP	Visual Survey Editor Program



EXECUTIVE SUMMARY

Valley Metro conducted a transit on-board survey during the Spring of 2015. The purpose of this project was to gather updated travel behavior data from transit users that encompasses all rail and bus fixed route services in the Phoenix metropolitan planning area. The data will be used for the following reasons:

1. Compile statistically accurate information about transit customers and how they use the transit system;
2. Generate reliable linked origin-destination data needed by Valley Metro and the Phoenix metropolitan area to support computerized travel demand modeling and transportation network simulation activities for purposes of regional air quality forecasting and long-range transportation planning;
3. Assess changes in trip characteristics and ridership profiles of transit passengers by comparing the 2014-2015 Transit Passenger Survey results with those from previous surveys;
4. Assist in fulfilling Valley Metro's commitment to the Federal Transit Administration (FTA) to conduct a thorough *Before and After Study* of the effects on transit ridership resulting from Central Mesa Extension. Valley Metro is also interested in understanding the effects on transit ridership on the locally funded Northwest Extension (Phase 1);
5. Meet the Title VI Civil Right Requirements per the latest Federal Transit Administration (FTA) guidance; and,
6. Survey results will be utilized for NTD reporting.

The goal was to obtain 15,621 completed surveys. Of those, 12,150 were to be completed with bus passengers and 3,471 were to be completed with rail passengers. The actual number of completed surveys was 21,803. Of these, 12,453 were completed with bus passengers and 9,350 were completed with rail passengers.

The magnitude of the survey will allow regional planners to better understand the needs and travel patterns of many specialized populations. For example, the final database contains responses from:

- Nearly 11,800 people who do not have cars
- More than 2,300 people under age 18 and
- More than 2,900 people age 55 or older
- More than 5,300 people with Hispanic/Latino ethnicity
- More than 5,500 students, including nearly than 3,600 college/university students and more than 1,700 students in grades K-12

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- Nearly 4,500 people living in households with incomes of less than $15,000 per year
- More than 15,200 people who were employed full or part time
- Nearly 2,400 people who were not employed but were seeking work

SOME IMPORTANT FINDINGS FROM THE ANALYSIS OF THE VALLEY METRO RIDERS ARE THE FOLLOWING:

- Sixty percent of all transit riders (60.3%) are between the ages of 19 and 34
- Over fifty percent of all Valley Metro transit riders (53.8%) don't have a valid driver's license
- Walking is the dominant access and egress mode for all riders, on average 88.0%
- About sixty-six percent (65.9%) of Valley Metro transit riders use only one route to complete their one-way trip
- Almost one-fourth (23.7%) of all Valley Metro transit riders speak another language besides English at home

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Chapter 1 SURVEY DESIGN

1.1 Survey Development Process

The survey development process began by having representatives from MAG and Valley Metro in cooperation with ETC Institute review the data requirements for the transit on-board survey. Since the primary objective for the project was to improve the regional transit ridership forecasts produced by MAG's travel demand model, many of the questions focused on collecting data that will support current and future transportation forecasting efforts. After multiple iterations of input and review, the survey instrument was shared with representatives of the FTA to ensure all Federal requirements and expectations for the design of the survey were met. All of the suggestions from the FTA staff were incorporated into the final version of the survey. The final version of the paper questionnaire is included in Appendix A.

The purpose of this project is to gather updated travel behavior data from transit users that encompasses all rail and bus fixed route services in the Phoenix metropolitan planning area. The data will be used to (1) compile statistically accurate information about transit customers and how they use the transit system, (2) generate reliable linked origin-destination data needed by Valley Metro and the Maricopa Association of Governments (MAG) to support computerized travel demand modeling and transportation network simulation activities for purposes of regional air quality forecasting and long-range transportation planning, (3) assess changes in trip characteristics and ridership profiles of transit passengers by comparing the 2014/2015 Transit Passenger Survey results with those from previous surveys, (4) assist in fulfilling Valley Metro's commitment to the Federal Transit Administration (FTA) to conduct a thorough *Before and After Study* of the effects on transit ridership resulting from Central Mesa Extension. Valley Metro is also interested in understanding the effects on transit ridership on the locally funded Northwest Extension (Phase 1), (5) meet the Title VI Civil Right Requirements per the latest Federal Transit Administration (FTA) guidance, and (6) survey results will be utilized for NTD reporting.

1.2 Types of Data Collected

To ensure the length of the survey did not negatively affect the response rate, the survey questions were divided into two categories: "required" and "desired" data as described below.

1.2.1 Required data

Required data involved questions for which a response from a respondent was required in order for the survey to be considered complete. At a minimum, the full intercept survey was designed to gather the following information:

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- Origin address
- Destination address
- Boarding location
- Alighting location
- Home address
- Access mode
- Egress mode
- Trip purpose/type of place at the origin
- Trip purpose/type of place at the destination
- Number of transfers
- Transfer routes
- Rail Transfer Stations
- Time of Day Trip was completed
- Direction of travel
- Access location to transit
- Egress location from transit
- Method of payment
- Number of vehicles available to the household
- Number of household occupants
- Student status
- Employment status
- Driver's licenses status
- Age
- Disability status
- Race/Ethnicity
- Gender
- Income
- English language ability

1.2.2 Desired data

Desired data involved questions for which a response from a respondent was desired, but was not required in order for the survey to be considered complete. The data that were considered to be "desired" are listed below:

- Distance walked from the origin to the transit system (if applicable)
- Distance walked from the transit system to the destination (if applicable)
- Park and ride location (if applicable) on either end of the trip
- Veteran Status
- How respondents get transit schedule information
- Name of the school where the respondent attends college or school (if applicable)

1.2.3 Additional Data Added

Other data was added after the survey was administered. The most important type of data that was added following the administration of the survey involved the purpose of the respondent's trip. The purpose of the trip was determined by the types of

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destinations that were visited by the respondent. The purpose of the trip was classified as one of eight trip purposes that are used by the region's travel demand model:

Home-Based Work (HBW): trips that began at home and ended at work or began at work and ended at home.

Home-Based Shopping (HBS): trips that began at home and ended at a shopping area or began at a shopping area and ended at home. If the respondent worked at a shopping area, the trip was classified as a HBW trip.

Home-Based College (HBC): trips that began at home and ended at a college/university or began at a college/university and ended at home. If the respondent worked at a college/university, the trip was classified as a HBW trip

Home-Based School (HSL) trips that began at home and ended at a K-12 school or began at a K-12 school and ended at home. If the respondent worked at a K-12 school, the trip was classified as a HBW trip

Home-Based Medical (HBM): trips that began at home and ended at a medical facility (hospital/doctor's office) or began at a medical facility and ended at home. If the respondent worked at a medical facility, the trip was classified as a HBW trip

Home-Based Airport (HBA): trips that began at home and ended at an airport or began at an airport and ended at home. If the respondent worked at an airport, the trip was classified as a HBW trip

Home-Based Other (HBO): trips that began at home and ended at any other location not previously listed or began at any location not previously listed and ended at home.

Non-Home-Based (NHB): trips that did not begin or end at home.

1.3 Descriptions of the Survey Instruments

The survey instrument was designed to be administered as a face-to-face interview using tablet personal computers (PCs) and printed surveys. Tablet PCs were the primary method and paper surveys, which were printed on heavy card stock for easy distribution and completion, were only used on some express route buses.

The tablet PCs were the preferred method as the tablet PC's have an on-screen mapping features that allows for real-time geocoding of addresses and places based off of either address, intersection or place searches based on feedback from respondents. The respondents can then confirm the geocoded location based on the on-screen map that shows the searched address/location via a Google Map indicator icon. In addition to using the mapping feature to collect the GPS coordinates of major survey locations

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(home address, origin address, destination address, boarding location, and alighting location), the tablet PC also allows the surveyor to walk through each question with the respondent to answer any questions as well as to ensure the quality of the data collected. The respondent can also press the answers to the questions directly on the tablet PC during the demographic section in order to allow for more privacy. The Tablet Version Survey can be found in Appendix B.

- For express routes, the respondent generally has a longer ride time and the routes often serve employed travelers with higher education levels. The combination of higher education levels, longer ride time, and the ease of distributing the paper surveys to a higher number of passengers often led to a much higher percentage of surveys being captured than would have been possible by using tablet PCs alone while still maintaining a high level of accuracy. Each paper survey contained a serial number that was used by ETC Institute to track the route and sequence in which surveys were completed. While most respondents completed the survey during their trips, postage-paid return envelopes were available for riders who did not have time to complete the survey while onboard the express buses. The paper version of the survey is provided in Appendix A.

Respondents who did not have time to complete the survey during their bus trip were also given the option of providing their phone numbers for follow-up. Those who provided their phone numbers were then contacted by ETC Institute's call center within three days of the original attempt to survey the rider to gather the remaining information needed to create a complete survey record.

Bilingual interviewers were also hired to administer the surveys on tablet PCs in Spanish. Paper surveys were also available in Spanish. ETC Institute's Call Center was also able to follow-up in both Spanish and Chinese.

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Chapter 2 SAMPLING PROCEDURES

2.1 On-to-Off Sampling Goals

An on-to-off survey is meant to capture the ridership flow of the bus route. In other words, the On-to-Off Survey captures where the individual rider boarded the bus and the corresponding location where the rider alighted. This allows for a more comprehensive understanding of the true ridership flow of the route, which then allows the main survey data to be more accurately expanded. The on-to-off survey was conducted on routes that had a daily ridership of 500 or more passengers. For all other routes, boarding and alighting location information collected during the main full intercept survey data collection process was used in place of the on-to-off surveys. During the collection, the survey team collected samples from 25% of the bus runs. The goal was to collect over 44,000 completed on-to-off surveys, with goals of collecting 20% of the estimated weekday ridership by time period and direction for each route. Table 2-1 series shows the original sampling goals and the actual number of completed on-to-off surveys that were obtained by route and direction.

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Table 2-1a: Sampling Goals and On-to-Off Surveys Completed by Time of Day and Direction (Bus Only)

Valley Metro 2015 Origin-Destination Survey Preliminary Sampling Plan for BUS ROUTES			SAMPLING GOALS FOR ON-TO-OFF SURVEY						ON-TO-OFF SURVEY Completed				
Route Number	Route Name	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL
Zero	Central	Northbound	20%	97	193	119	82	**491**	141	340	147	92	**720**
Zero	Central	Southbound	20%	104	203	135	80	**523**	116	343	166	99	**724**
3	Van Buren	Eastbound	20%	105	197	134	84	**520**	124	415	160	160	**859**
3	Van Buren	Westbound	20%	103	239	152	96	**590**	218	245	255	96	**814**
7	7th Street	Northbound	20%	101	188	111	69	**469**	197	261	190	71	**719**
7	7th Street	Southbound	20%	97	162	115	65	**440**	97	377	173	73	**720**
8	7th Ave	Northbound	20%	43	82	43	30	**198**	43	276	92	30	**441**
8	7th Ave	Southbound	20%	37	92	45	25	**200**	57	311	194	37	**599**
10	Roosevelt/Grant	Northbound	20%	112	90	46	32	**280**	72	283	136	19	**510**
10	Roosevelt/Grant	Southbound	20%	45	110	119	57	**332**	15	168	188	71	**442**
12	12th St	Northbound	20%	30	41	30	19	**120**	90	63	62	20	**235**
12	12th St	Southbound	20%	25	50	26	9	**110**	70	52	26	12	**160**
13	Buckeye	Eastbound	20%	19	30	18	14	**81**	33	89	12	16	**150**
13	Buckeye	Westbound	20%	19	28	18	11	**75**	48	55	42	22	**167**
15	15th Ave	Northbound	20%	19	46	29	21	**116**	23	74	41	22	**160**
15	15th Ave	Southbound	20%	27	44	20	13	**103**	57	97	51	20	**225**
16	16th St	Northbound	20%	80	184	91	62	**417**	153	204	151	62	**570**
16	16th St	Southbound	20%	65	169	108	66	**407**	137	174	124	88	**523**
17	McDowell	Eastbound	20%	138	245	141	95	**618**	161	411	143	79	**794**
17	McDowell	Westbound	20%	136	249	168	97	**649**	178	277	223	124	**802**
19	19th Ave	Northbound	20%	113	235	153	97	**598**	198	236	200	119	**753**
19	19th Ave	Southbound	20%	117	199	156	100	**572**	138	321	157	167	**783**
27	27th Ave	Northbound	20%	97	170	106	86	**459**	357	175	257	110	**899**
27	27th Ave	Southbound	20%	85	162	92	62	**402**	103	396	132	78	**709**
29	Thomas Rd	Eastbound	20%	177	307	198	127	**809**	180	416	241	168	**1005**
29	Thomas Rd	Westbound	20%	153	294	206	121	**774**	266	307	240	121	**934**
30	University	Eastbound	20%	44	96	78	66	**285**	90	125	148	68	**431**
30	University	Westbound	20%	58	86	50	58	**253**	98	119	106	66	**389**
35	35th Ave	Northbound	20%	126	226	172	108	**632**	363	355	284	270	**1272**
35	35th Ave	Southbound	20%	118	244	166	122	**650**	125	537	209	125	**996**
40	Apache/Main St	Eastbound	20%	33	100	50	31	**213**	77	143	151	62	**433**
40	Apache/Main St	Westbound	20%	35	69	36	41	**181**	46	201	112	63	**422**
41	Indian School	Eastbound	20%	178	300	168	90	**737**	242	346	255	175	**1018**
41	Indian School	Westbound	20%	104	277	141	75	**598**	163	278	326	138	**905**
43	43rd Ave	Northbound	20%	51	104	80	58	**292**	131	115	193	68	**507**
43	43rd Ave	Southbound	20%	52	87	44	32	**215**	60	179	44	92	**375**
44	44th St/Tatum	Northbound	20%	46	75	55	39	**216**	140	84	81	55	**360**
44	44th St/Tatum	Southbound	20%	35	73	49	33	**190**	63	154	70	73	**360**
45	Broadway	Eastbound	20%	85	126	96	79	**386**	144	156	131	103	**534**
45	Broadway	Westbound	20%	69	127	91	65	**352**	77	220	129	95	**521**
48	48th Street/Rio Salado	Northbound	20%	30	51	40	46	**167**	34	61	121	87	**303**
48	48th Street/Rio Salado	Southbound	20%	23	44	36	43	**146**	35	88	88	47	**258**
50	Camelback	Eastbound	20%	183	214	151	91	**639**	184	436	172	114	**906**
50	Camelback	Westbound	20%	119	228	221	113	**680**	159	405	233	181	**978**
51	51st Ave	Northbound	20%	26	67	37	26	**157**	63	93	121	45	**322**
51	51st Ave	Southbound	20%	26	51	35	24	**136**	37	105	86	41	**269**
52	Roeser	Eastbound	20%	14	21	16	8	**58**	40	40	53	17	**150**
52	Roeser	Westbound	20%	22	19	17	10	**68**	29	61	63	12	**165**
56	Priest Drive	Northbound	20%	40	68	71	52	**230**	46	63	94	56	**259**
56	Priest Drive	Southbound	20%	47	53	46	40	**186**	93	149	130	41	**413**
59	59th Ave	Northbound	20%	60	109	65	45	**280**	209	168	174	45	**596**
59	59th Ave	Southbound	20%	60	140	83	56	**339**	65	285	95	130	**575**
60	Bethany Home	Eastbound	20%	63	82	55	33	**233**	100	156	57	47	**360**
60	Bethany Home	Westbound	20%	43	85	85	44	**258**	84	107	112	42	**345**
61	Southern	Eastbound	20%	135	228	159	122	**645**	226	318	395	146	**1085**
61	Southern	Westbound	20%	124	212	147	114	**598**	136	437	163	205	**941**
62	Hardy/Guadalupe	Northbound	20%	18	32	25	32	**107**	63	63	85	32	**243**
62	Hardy/Guadalupe	Southbound	20%	15	26	24	20	**85**	92	43	110	34	**279**
65	Mill/Kyrene	Northbound	20%	26	30	21	15	**92**	42	33	54	9	**138**
65	Mill/Kyrene	Southbound	20%	17	28	31	8	**83**	29	45	49	12	**135**
66	Mill/Kyrene	Northbound	20%	10	22	14	10	**56**	12	26	37	19	**94**
66	Mill/Kyrene	Southbound	20%	4	16	12	12	**45**	38	19	29	15	**101**
67	67th Ave	Northbound	20%	53	105	74	44	**276**	137	122	108	50	**417**
67	67th Ave	Southbound	20%	39	85	56	42	**223**	58	149	126	49	**382**

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Table 2-1a: Sampling Goals and On-to-Off Surveys Completed by Time of Day and Direction (Bus Only) (Continued)

Valley Metro 2015 Origin-Destination Survey Preliminary Sampling Plan for BUS ROUTES			SAMPLING GOALS FOR ON-TO-OFF SURVEY						ON-TO-OFF SURVEY Completed				
Route Number	Route Name	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL
70	Glendale Ave/24th St	Eastbound	20%	149	214	176	120	**659**	152	387	183	199	**921**
70	Glendale Ave/24th St	Westbound	20%	117	225	155	94	**591**	199	260	281	182	**922**
72	Scottsdale Rd/Rural	Northbound	20%	89	143	106	67	**405**	188	191	127	115	**621**
72	Scottsdale Rd/Rural	Southbound	20%	61	123	111	76	**371**	65	172	225	151	**613**
77	Baseline	Eastbound	20%	77	144	85	56	**362**	85	145	122	15	**367**
77	Baseline	Westbound	20%	60	115	104	48	**327**	89	122	102	128	**441**
80	Northern/Shea	Eastbound	20%	58	77	32	25	**192**	123	148	57	60	**388**
80	Northern/Shea	Westbound	20%	39	96	67	37	**239**	47	104	140	51	**342**
81	Hayden/McClintock	Northbound	20%	65	103	92	76	**337**	92	211	94	82	**479**
81	Hayden/McClintock	Southbound	20%	48	70	46	41	**205**	62	234	137	42	**475**
90	Dunlap/Cave Creek	Eastbound	20%	51	114	56	50	**271**	106	149	82	62	**399**
90	Dunlap/Cave Creek	Westbound	20%	43	102	67	45	**258**	68	102	93	70	**333**
96	Dobson	Northbound	20%	27	65	49	36	**178**	27	211	104	109	**451**
96	Dobson	Southbound	20%	52	94	59	64	**269**	85	151	69	73	**378**
104	Alma School	Northbound	20%	16	37	37	16	**106**	47	46	64	7	**164**
104	Alma School	Southbound	20%	21	30	14	9	**74**	31	78	43	29	**181**
106	Peoria/Shea	Eastbound	20%	54	117	53	39	**262**	40	252	107	100	**499**
106	Peoria/Shea	Westbound	20%	42	87	58	42	**229**	78	136	163	84	**461**
108	Elliot Rd	Eastbound	20%	24	44	40	24	**131**	25	82	66	24	**197**
108	Elliot Rd	Westbound	20%	27	40	23	18	**108**	27	91	83	25	**226**
112	Country Club/Arizona Ave	Northbound	20%	34	101	60	51	**245**	37	134	69	64	**304**
112	Country Club/Arizona Ave	Southbound	20%	40	78	40	26	**183**	55	122	66	30	**273**
136	Gilbert Rd	Northbound	20%	15	42	34	12	**103**	28	47	32	5	**112**
136	Gilbert Rd	Southbound	20%	24	33	18	11	**87**	25	79	20	7	**131**
138	Thunderbird	Eastbound	20%	21	49	28	23	**121**	25	98	78	23	**224**
138	Thunderbird	Westbound	20%	23	39	25	19	**106**	27	66	79	43	**215**
154	Greenway	Eastbound	20%	46	40	24	17	**127**	69	65	39	6	**179**
154	Greenway	Westbound	20%	16	31	28	17	**91**	29	39	58	29	**155**
156	Chandler Blvd/Williams Field Rd	Eastbound	20%	15	33	25	16	**88**	26	71	30	20	**147**
156	Chandler Blvd/Williams Field Rd	Westbound	20%	17	26	17	12	**72**	25	33	32	22	**112**
170	Bell	Eastbound	20%	54	125	84	62	**324**	86	206	186	42	**520**
170	Bell	Westbound	20%	37	103	65	52	**257**	67	138	149	99	**453**
184	Power Rd	Northbound	20%	22	37	24	17	**99**	21	40	25	9	**95**
184	Power Rd	Southbound	20%	24	25	21	13	**83**	8	37	22	25	**92**
186	Union Hills	Eastbound	20%	45	70	31	30	**176**	109	78	80	17	**284**
186	Union Hills	Westbound	20%	33	59	42	23	**157**	38	83	54	31	**206**
640	Main St Link	Eastbound	20%	29	37	32	45	**143**	47	39	122	11	**219**
640	Main St Link	Westbound	20%	32	41	38	30	**141**	41	98	41	58	**238**
641	AZ Ave Link	Northbound	20%	22	48	22	15	**108**	26	121	79	60	**286**
641	AZ Ave Link	Southbound	20%	22	39	37	14	**112**	44	121	92	33	**290**
ALEX	ALEX	Circular	20%		130			**130**		135			**135**
DASH	DASH	Circular	20%		395			**395**		523			**523**
SMRT	SCOTTSDALE MILLER RD TROLLEY	Circular	20%		477			**477**		577			**577**
SNT	SCOTTSDALE NEIGHBORHOOD TROLLEY	Circular	20%		560			**560**		786			**786**
EARTH	EARTH	Circular	20%		286			**286**		357			**357**
FLASH	FLASH	Circular	20%		253			**253**		336			**336**
JUPITER	JUPITER	Circular	20%		349			**349**		312			**312**
MARS	MARS	Circular	20%		249			**249**		286			**286**
MARY	MARY	Circular	20%		324			**324**		343			**343**
MERCURY	MERCURY	Circular	20%		434			**434**		429			**429**
METS 19C	METS 19C	Circular	20%		829			**829**		1015			**1015**
SMART	SMART	Circular	20%		167			**167**		178			**178**
VENUS	VENUS	Circular	20%		322			**322**		334			**334**
ZOOM	ZOOM	Circular	20%		144			**144**		161			**161**
	GRAND TOTAL BUS ROUTES			**11010**	**11110**	**7577**	**5063**	**34760**	**10757**	**18597**	**13622**	**8399**	**51375**

Table 2-1b: Sampling Goals and On-to-Off Surveys Completed by Time of Day and Direction (Rail Only)

Valley Metro 2015 Origin-Destination Survey Preliminary Sampling Plan for RAIL		SAMPLING GOALS FOR ON-TO-OFF SURVEY (20% Sampling on All Stations)						ON-TO-OFF SURVEY Completed				
Route Number	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL
19th Ave / Camelback	Eastbound	20%	108	106	50	66	**330**	153	184	98	89	**524**
19th Ave / Camelback	Westbound	20%	9	37	24	27	**97**	18	38	31	31	**118**
38th St / Washington	Eastbound	20%	2	4	2	4	**12**	36	45	37	10	**128**
38th St / Washington	Westbound	20%	14	24	14	14	**65**	30	35	32	21	**118**
44th St / Washington	Eastbound	20%	24	43	26	38	**131**	52	105	66	40	**263**
44th St / Washington	Westbound	20%	26	61	45	54	**186**	40	79	99	73	**291**
7th Ave / Camelback	Eastbound	20%	33	53	28	34	**149**	65	69	68	48	**250**
7th Ave / Camelback	Westbound	20%	8	30	28	23	**89**	9	31	38	24	**102**
Campbell / Central Ave	Eastbound	20%	18	38	75	20	**151**	31	43	95	27	**196**
Campbell / Central Ave	Westbound	20%	5	22	67	15	**109**	8	23	124	17	**172**
Center Pkwy / Washington St	Eastbound	20%	12	15	7	12	**46**	13	26	14	16	**69**
Center Pkwy / Washington St	Westbound	20%	6	8	5	10	**28**	7	20	25	11	**63**
Central Ave / Camelback	Eastbound	20%	42	49	29	31	**152**	92	88	64	42	**286**
Central Ave / Camelback	Westbound	20%	5	15	19	15	**55**	6	16	46	15	**83**

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Table 2-1b: Sampling Goals and On-to-Off Surveys Completed by Time of Day and Direction (Rail Only)

Valley Metro 2015 Origin-Destination Survey Preliminary Sampling Plan for RAIL		SAMPLING GOALS FOR ON-TO-OFF SURVEY (20% Sampling on All Stations)						ON-TO-OFF SURVEY Completed				
Route Number	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL
Dorsey Ln / Apache Blvd	Eastbound	20%	7	17	18	25	**68**	11	18	19	25	**73**
Dorsey Ln / Apache Blvd	Westbound	20%	31	46	21	26	**125**	38	52	24	35	**149**
EB 12th St / Jefferson	Eastbound	20%	17	21	13	17	**67**	19	35	34	27	**115**
EB 12th St / Jefferson	Westbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
EB 24th St / Jefferson	Eastbound	20%	27	37	24	30	**118**	52	65	38	43	**198**
EB 24th St / Jefferson	Westbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
EB 3rd St / Jefferson	Eastbound	20%	7	40	55	107	**209**	23	49	109	134	**315**
EB 3rd St / Jefferson	Westbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
EB Jefferson / 1st Ave	Eastbound	20%	24	51	63	39	**177**	44	69	82	56	**251**
EB Jefferson / 1st Ave	Westbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
EB Van Buren / 1st Ave	Eastbound	20%	45	116	84	71	**316**	92	142	170	92	**496**
EB Van Buren / 1st Ave	Westbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
Encanto / Central Ave	Eastbound	20%	10	24	21	16	**70**	18	28	39	18	**103**
Encanto / Central Ave	Westbound	20%	6	14	11	10	**41**	12	16	15	13	**56**
Indian School / Central Ave	Eastbound	20%	52	100	62	41	**255**	103	140	124	51	**418**
Indian School / Central Ave	Westbound	20%	20	39	39	23	**121**	20	39	50	31	**140**
McClintock Dr / Apache Blvd	Eastbound	20%	6	17	16	20	**59**	9	17	19	20	**65**
McClintock Dr / Apache Blvd	Westbound	20%	81	107	46	52	**285**	108	151	62	58	**379**
McDowell / Central Ave	Eastbound	20%	30	84	57	41	**212**	59	86	66	48	**259**
McDowell / Central Ave	Westbound	20%	23	68	51	37	**179**	33	75	78	43	**229**
Mill Ave / Third St	Eastbound	20%	5	22	23	35	**86**	14	32	37	36	**119**
Mill Ave / Third St	Westbound	20%	21	47	47	85	**199**	37	82	69	85	**273**
Montebello / 19th Ave	Eastbound	20%	163	275	147	183	**769**	315	398	377	263	**1353**
Montebello / 19th Ave	Westbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
Osborn / Central Ave	Eastbound	20%	21	44	38	28	**132**	36	47	64	43	**190**
Osborn / Central Ave	Westbound	20%	9	26	23	18	**76**	13	31	35	25	**104**
Price-101 / Apache Blvd	Eastbound	20%	3	8	5	9	**24**	4	11	5	11	**31**
Price-101 / Apache Blvd	Westbound	20%	66	101	30	33	**231**	96	119	53	46	**314**
Priest Dr / Washington St	Eastbound	20%	42	85	70	91	**288**	58	91	87	126	**362**
Priest Dr / Washington St	Westbound	20%	19	31	43	34	**126**	35	34	54	47	**170**
Roosevelt / Central Ave	Eastbound	20%	17	33	22	20	**91**	31	46	31	38	**146**
Roosevelt / Central Ave	Westbound	20%	16	35	22	26	**99**	31	49	43	37	**160**
Smith-Martin / Apache Blvd	Eastbound	20%	9	17	12	15	**53**	10	22	16	15	**63**
Smith-Martin / Apache Blvd	Westbound	20%	14	26	13	16	**69**	31	29	21	19	**100**
Sycamore / Main St	Eastbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
Sycamore / Main St	Westbound	20%	172	282	151	181	**786**	333	482	327	224	**1366**
Thomas / Central Ave	Eastbound	20%	28	78	70	43	**220**	61	106	89	69	**325**
Thomas / Central Ave	Westbound	20%	24	47	45	29	**145**	28	47	61	31	**167**
University Dr / Rural Rd	Eastbound	20%	8	104	109	98	**319**	16	106	108	101	**331**
University Dr / Rural Rd	Westbound	20%	33	74	57	65	**230**	76	150	113	91	**430**
Veterans Way / College Ave	Eastbound	20%	12	56	57	56	**181**	25	62	57	60	**204**
Veterans Way / College Ave	Westbound	20%	27	85	77	68	**257**	53	85	126	96	**360**
WB 12th St / Washington	Eastbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
WB 12th St / Washington	Westbound	20%	15	33	17	20	**85**	18	41	38	21	**118**
WB 24th St / Washington	Eastbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
WB 24th St / Washington	Westbound	20%	18	39	26	27	**111**	23	64	45	27	**159**
WB 3rd St / Washington	Eastbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
WB 3rd St / Washington	Westbound	20%	5	23	33	56	**118**	12	31	56	100	**199**
WB Van Buren / Central Ave	Eastbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
WB Van Buren / Central Ave	Westbound	20%	96	169	106	73	**444**	121	164	166	81	**532**
WB Washington / Central Ave	Eastbound	20%	0	0	0	0	**0**	0	0	0	0	**0**
WB Washington / Central Ave	Westbound	20%	26	74	73	42	**215**	35	75	92	48	**250**
GRAND TOTAL For RAIL			**1568**	**3102**	**2316**	**2270**	**9257**	**2713**	**4188**	**3936**	**2898**	**13735**

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2.1.1 Assessment of Valley Metro On-to-Off Survey

Overall, the total number of surveys exceeded the contractual requirements by more than 4,000 rail surveys and 16,500 bus surveys. More information on the on-to-off procedures and QA/QC process can be found in Chapter 4 and Chapter 5.

2.1.2 Methods for Selecting On-to-Off Survey Participants

On bus routes, the card scanning technology described in Chapter 4 allows for essentially everyone who boards the bus to be surveyed by two surveyors. The surveyor at the front will scan a card with a unique bar code that records the current GPS location in real-time, then they hand the card to the boarding passenger. When the passenger alights, another surveyor can take the card from the passenger and scan the barcode again, which will then record the current GPS location of the alighting location. The technology works so quickly that everyone boarding the bus can be surveyed.

For rail lines, a tablet survey was used that allowed an interviewer to ask rail users which station they boarded their current train and which station they would alight. This was used in place of the scanning technology used on buses because unlike bus users, essentially all rail users know the name of the stations at which they board and alight. The shortness of this two question survey, and the high level of knowledge regarding the boarding and alighting location by the rail users, allowed for one surveyor to survey essentially every rider per train car. One surveyor per car, per train could effectively administer the on-to-off survey to each rail rider.

2.1.3 Timing of the On-to-Off Survey

The on-to-off survey was administered during weekdays (Tuesday through Thursday) with the exceptions of holidays and breaks for colleges/schools.

The on-to-off Survey was administered during all the time-of-day periods that coincided with the hours that each route was operational. This was to ensure that the on-to-off data would provide the main survey with an accurate sampling plan for administration and for the data expansion. Most of the on-to-off surveys were administered between the hours of 6 a.m. and 10 p.m.

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2.2 Main Intercept Survey Sampling Goals

In order to ensure that the distribution of completed surveys mirrored the actual distribution of riders who use the region's transit system, Valley Metro created Variable Sampling Rates for each bus route and light rail station as shown below in Table 2-2 Series. The sampling goals for the survey were set by applying the sampling rates average weekday ridership for each bus route/light rail station. During the collection, the survey team collected sample from 25% of the Bus Runs to reach their goals. The goals and the actual number of "complete and useable surveys" are also provided in Table 2-2 Series (see below and on the following pages).

Table 2-2 a: Sampling Goals and Main Surveys Completed by Time of Day and Direction (Bus Only)

Valley Metro 2015 Origin-Destination Survey Sampling Plan for BUS ROUTES			GOALS					COMPLETED				
Route Number	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	DIRECTION TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	DIRECTIONAL TOTAL
Zero	Northbound	10.00%	67	72	68	48	256	58	96	60	45	259
Zero	Southbound	10.00%	60	77	63	48	247	64	88	67	36	255
1	Eastbound	10.00%	9	5	5	4	23	5	4	2	2	13
1	Westbound	10.00%	5	5	12	3	25	3	4	4	4	15
3	Eastbound	4.75%	24	44	30	19	117	26	51	33	23	133
3	Westbound	4.75%	28	64	41	26	159	37	54	36	16	143
7	Northbound	4.75%	22	40	24	15	101	30	41	24	15	110
7	Southbound	4.75%	27	46	33	18	124	23	42	25	14	104
8	Northbound	5.51%	25	16	20	10	72	16	28	17	9	70
8	Southbound	5.50%	19	18	21	12	69	12	27	18	14	71
10	Northbound	4.75%	29	14	19	9	71	28	27	25	7	87
10	Southbound	4.75%	11	10	17	8	45	13	29	27	14	83
12	Northbound	5.80%	8	11	8	5	32	9	23	13	10	55
12	Southbound	5.84%	8	12	8	5	33	15	18	14	8	55
13	Eastbound	5.95%	8	8	7	5	28	7	15	6	5	33
13	Westbound	5.97%	7	6	9	6	28	6	9	5	3	23
15	Northbound	5.82%	4	10	6	4	25	6	15	11	7	39
15	Southbound	5.86%	9	13	7	4	33	13	15	8	7	43
16	Northbound	4.75%	28	22	28	21	98	30	39	22	12	103
16	Southbound	4.75%	23	32	31	15	102	13	46	26	16	101
17	Eastbound	4.75%	55	57	72	43	227	34	61	41	26	162
17	Westbound	4.75%	36	35	44	27	144	42	43	43	28	156
19	Northbound	10.00%	99	81	99	49	328	69	120	73	56	318
19	Southbound	10.00%	78	63	89	89	318	56	91	78	48	273
27	Northbound	4.75%	18	32	20	16	86	28	39	27	22	116
27	Southbound	4.75%	30	56	32	22	140	20	39	26	19	104
28	Eastbound	10.00%	2	3	1	2	9	2	4	3	1	10
28	Westbound	10.00%	2	3	2	2	9	1	7	4	3	15
29	Eastbound	4.75%	61	96	77	69	303	46	72	42	37	197
29	Westbound	4.75%	45	46	70	30	190	39	64	55	31	189
30	Eastbound	10.00%	39	36	46	37	158	29	49	36	30	144
30	Westbound	10.00%	41	29	36	24	130	27	49	27	29	132
35	Northbound	4.75%	45	37	40	22	144	35	55	46	25	161
35	Southbound	4.75%	41	30	42	65	178	32	59	38	36	165
39	Northbound	10.00%	2	5	3	2	13	5	9	3	2	19
39	Southbound	10.00%	4	5	3	2	14	3	8	3	2	16
40	Eastbound	10.00%	18	17	20	18	72	23	44	24	14	105
40	Westbound	10.00%	24	29	23	14	90	19	44	27	24	114
41	Eastbound	4.75%	63	66	67	49	245	43	69	36	26	174
41	Westbound	4.75%	36	45	50	30	161	43	63	36	22	164
43	Northbound	4.75%	23	14	20	13	71	18	23	18	10	69
43	Southbound	4.75%	20	20	19	11	69	18	21	18	9	66
44	Northbound	4.75%	18	12	16	10	56	22	23	15	8	68
44	Southbound	5.54%	18	12	18	10	57	11	26	13	10	60
45	Eastbound	10.00%	48	45	59	37	188	50	69	48	36	203
45	Westbound	10.00%	75	50	71	49	245	41	74	48	38	201
48	Northbound	5.80%	7	4	6	5	22	8	13	11	13	45
48	Southbound	5.70%	8	5	7	4	24	15	19	12	9	55
50	Eastbound	4.75%	49	57	40	24	170	44	52	35	23	154
50	Westbound	4.75%	29	55	53	27	164	30	56	55	31	172
51	Northbound	6.60%	14	14	15	10	52	12	16	15	10	53
51	Southbound	5.74%	14	13	15	9	50	12	16	10	6	44
52	Eastbound	6.03%	8	10	4	2	24	4	6	4	2	16
52	Westbound	6.00%	7	3	3	3	16	7	7	8	3	25

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Table 2-2a: Sampling Goals and Main Surveys Completed by Time of Day and Direction (Bus Only) (Continued)

Valley Metro 2015 Origin-Destination Survey Sampling Plan for BUS ROUTES			GOALS					COMPLETED				
Route Number	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	DIRECTION TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	DIRECTIONAL TOTAL
56	Northbound	4.75%	13	9	14	12	48	15	16	17	8	56
56	Southbound	5.55%	20	12	15	14	61	21	25	13	8	67
59	Northbound	4.75%	30	15	17	12	75	18	30	15	9	72
59	Southbound	4.75%	16	21	20	11	68	17	32	20	13	82
60	Eastbound	10.00%	43	38	32	23	136	37	43	30	33	143
60	Westbound	10.00%	23	37	42	22	123	35	54	45	19	153
61	Eastbound	4.75%	33	45	34	52	165	38	55	39	29	161
61	Westbound	4.75%	29	54	51	28	163	33	51	36	31	151
62	Northbound	5.85%	11	10	13	6	41	10	18	9	7	44
62	Southbound	5.93%	9	7	12	4	31	13	20	11	6	50
65	Northbound	5.91%	9	11	8	5	33	7	8	7	4	26
65	Southbound	5.94%	12	13	10	4	38	9	9	10	4	32
66	Northbound	6.04%	10	5	8	5	30	5	10	4	3	22
66	Southbound	6.08%	13	9	10	8	39	6	13	5	5	29
67	Northbound	4.75%	20	16	20	12	67	15	31	16	7	69
67	Southbound	4.75%	19	15	22	11	67	14	22	16	11	63
70	Eastbound	10.00%	95	91	94	70	349	73	118	96	62	349
70	Westbound	10.00%	101	109	95	57	362	93	109	85	54	341
72	Northbound	4.75%	36	35	33	21	124	24	32	26	16	98
72	Southbound	4.75%	21	25	27	19	92	22	34	24	17	97
75	Northbound	10.00%	6	8	5	3	21	3	5	8	2	18
75	Southbound	10.00%	4	9	9	3	25	4	7	4	2	17
77	Eastbound	4.75%	22	17	21	12	71	18	38	21	13	90
77	Westbound	4.75%	20	23	31	15	89	35	37	29	9	110
80	Eastbound	10.00%	34	27	26	26	113	37	37	24	21	119
80	Westbound	10.00%	19	28	39	30	117	24	48	33	19	124
81	Northbound	4.75%	23	22	21	18	84	18	25	24	15	82
81	Southbound	4.75%	15	12	20	12	59	18	38	20	12	88
83	Northbound	10.00%	4	9	4	2	18	4	6	4	3	17
83	Southbound	10.00%	3	7	3	2	15	5	5	8	3	21
90	Eastbound	10.00%	44	39	41	30	154	32	50	31	26	139
90	Westbound	10.00%	36	32	44	26	139	24	53	34	23	134
96	Northbound	5.58%	18	22	22	20	82	9	18	14	12	53
96	Southbound	4.75%	8	9	9	7	33	17	24	14	10	65
104	Northbound	10.00%	21	20	21	23	84	11	17	17	8	53
104	Southbound	10.00%	13	12	12	8	46	15	14	9	6	44
106	Eastbound	4.75%	21	20	20	21	83	15	27	15	12	69
106	Westbound	4.75%	13	11	12	7	43	24	27	28	14	93
108	Eastbound	5.76%	11	7	14	8	40	13	13	11	4	41
108	Westbound	5.85%	10	13	7	9	39	9	19	8	7	43
112	Northbound	10.00%	28	21	35	31	115	18	49	30	21	118
112	Southbound	10.00%	26	22	13	16	78	33	44	26	10	113
120	Northbound	10.00%	4	8	5	4	21	4	14	9	5	32
120	Southbound	10.00%	3	9	3	3	18	5	14	6	5	30
122	Eastbound	15.00%	2	4	2	1	10	5	8	13	7	33
122	Westbound	15.00%	2	3	3	2	10	5	10	8	4	27
128	Northbound	20.00%	6	11	9	8	33	9	14	16	3	42
128	Southbound	20.00%	11	12	13	7	44	11	14	9	2	36
136	Northbound	5.86%	4	11	9	3	26	5	14	10	4	33
136	Southbound	5.92%	8	11	6	4	28	9	9	5	3	26
138	Eastbound	5.80%	15	14	15	10	54	7	12	9	6	34
138	Westbound	5.85%	14	12	14	9	49	8	15	8	7	38
154	Eastbound	5.78%	15	7	7	5	34	14	15	8	5	42
154	Westbound	5.91%	6	7	13	5	32	4	20	10	5	39
156	Eastbound	5.92%	11	9	9	6	35	8	13	8	5	34
156	Westbound	5.98%	14	8	8	14	44	11	18	9	6	44
170	Eastbound	4.75%	26	21	20	13	80	16	29	22	15	82
170	Westbound	4.75%	18	21	26	13	78	10	23	18	13	64
184	Northbound	5.88%	4	4	4	3	15	6	10	7	5	28
184	Southbound	5.94%	6	5	6	4	20	8	7	9	5	29
186	Eastbound	5.59%	17	11	11	7	46	14	15	24	10	63
186	Westbound	5.66%	6	6	8	6	26	7	21	23	16	67
251	Northbound	15.00%	6	11	6	8	32	3	8	4	5	20
251	Southbound	15.00%	4	10	7	7	29	2	6	5	4	17
400-SR51	Inbound	15.00%	64	0	0	26	90	25	0	0	13	38
400-SR51	Outbound	6.03%	0	0	7	0	7	0	0	15	1	16
450-I10East	Inbound	6.07%	8	0	0	12	20	17	0	0	11	28
450-I10East	Outbound	10.00%	0	0	26	10	36	0	0	16	9	25
451-CSM	Inbound	10.00%	3	0	0	0	3	6	0	0	0	6
451-CSM	Outbound	10.00%	0	0	4	0	4	0	0	11	0	11
460-I10West	Inbound	10.00%	26	0	0	11	37	16	0	0	9	25
460-I10West	Outbound	10.00%	0	0	9	0	9	0	0	10	1	11
480-I17	Inbound	10.00%	50	0	0	0	50	18	0	0	0	18
480-I17	Outbound	5.97%	0	0	52	0	52	0	0	24	0	24

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Table 2-2a: Sampling Goals and Main Surveys Completed by Time of Day and Direction (Bus Only) (Continued)

Valley Metro 2015 Origin-Destination Survey Sampling Plan for BUS ROUTES			GOALS					COMPLETED				
Route Number	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	DIRECTION TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	DIRECTIONAL TOTAL
514	Inbound	10.00%	3	0	0	0	3	3	0	0	0	3
514	Outbound	10.00%	0	0	2	0	2	0	0	2	0	2
520	Inbound	10.00%	3	0	0	0	3	5	0	0	0	5
520	Outbound	10.00%	0	0	3	0	3	0	0	6	0	6
521	Inbound	10.00%	5	0	0	0	5	10	0	0	0	10
521	Outbound	10.00%	0	0	5	0	5	0	0	6	0	6
522	Inbound	10.00%	5	0	0	0	5	7	0	0	0	7
522	Outbound	10.00%	0	0	7	0	7	0	0	9	0	9
531	Inbound	10.00%	13	0	0	0	13	10	0	0	0	10
531	Outbound	10.00%	0	0	12	0	12	0	0	7	0	7
533	Inbound	10.00%	19	0	0	0	19	13	0	0	0	13
533	Outbound	10.00%	0	0	24	0	24	0	0	14	0	14
535	Inbound	10.00%	16	0	0	0	16	29	0	0	0	29
535	Outbound	10.00%	0	0	15	0	15	0	0	12	0	12
541	Inbound	10.00%	9	0	0	0	9	15	0	0	0	15
541	Outbound	6.03%	0	0	5	0	5	0	0	16	0	16
542	Inbound	10.00%	14	0	0	0	14	14	0	0	0	14
542	Outbound	5.96%	0	0	10	0	10	0	0	21	0	21
562	Inbound	10.00%	9	0	0	0	9	16	0	0	0	16
562	Outbound	10.00%	0	0	12	0	12	0	0	4	0	4
563	Inbound	10.00%	7	0	0	0	7	4	0	0	0	4
563	Outbound	10.00%	0	0	8	0	8	0	0	5	0	5
571	Inbound	10.00%	8	0	0	0	8	7	0	0	0	7
571	Outbound	10.00%	0	0	10	0	10	0	0	5	0	5
573	Inbound	10.00%	9	0	0	0	9	8	0	0	0	8
573	Outbound	10.00%	0	0	8	0	8	0	0	9	0	9
575	Inbound	10.00%	7	0	0	0	7	15	0	0	0	15
575	Outbound	10.00%	0	0	6	0	6	0	0	6	0	6
601-GAL	Inbound	10.00%	3	0	0	0	3	8	0	0	0	8
601-GAL	Outbound	10.00%	0	0	2	0	2	0	0	8	0	8
640-MAIN	Eastbound	5.72%	5	11	9	10	34	8	21	8	8	45
640-MAIN	Westbound	5.72%	8	14	10	14	46	6	20	8	11	45
641-AZAV	Northbound	5.85%	4	11	15	8	39	6	14	11	12	43
641-AZAV	Southbound	5.83%	10	8	13	10	41	11	10	15	5	41
ALEX	Circular	5.76%	28				28	34				34
BUZZ	Circular	10.00%	33				33	46				46
DASH	Circular	4.75%	96				96	92				92
SCOTTSDALE DOWNTOWN TROLLEY	Circular	20.00%	58				58	55				55
SCOTTSDALE MILLER RD TROLLEY	Circular	4.75%	58				58	114				114
SCOTTSDALE NEIGHBORHOOD TROLLEY	Circular	4.75%	66				66	148				148
EARTH	Circular	4.75%	57				57	70				70
FLASH	Circular	4.75%	46				46	56				56
GUS	Circular	10.00%	31				31	39				39
JUPITER	Circular	5.25%	84				84	87				87
MARS	Circular	4.75%	70				70	72				72
MARY	Circular	5.70%	59				59	124				124
MERCURY	Circular	4.75%	98				98	101				101
METS 19C	Circular	4.75%	213				213	199				199
SMART	Circular	4.75%	39				39	41				41
VENUS	Circular	5.75%	70				70	94				94
ZOOM	Circular	4.75%	40				40	35				35
GRAND TOTAL For BUS			12150					12453				

Table 2-2b: Sampling Goals and Main Surveys Completed by Time of Day and Direction (Rail Only)

Valley Metro 2015 Origin-Destination Survey Sampling Plan for RAIL STATIONS			SAMPLING GOALS FOR MAIN SURVEY					MAIN SURVEY COMPLETED				
STATION	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL
19th Ave / Camelback	Eastbound	10%	54	53	25	33	165	106	122	51	55	334
19th Ave / Camelback	Westbound	10%	5	19	12	13	49	5	19	14	11	49
38th St / Washington	Eastbound	10%	1	2	1	2	6	17	15	7	12	51
38th St / Washington	Westbound	10%	7	12	7	7	33	26	42	18	22	108
44th St / Washington	Eastbound	10%	12	22	13	19	66	36	56	27	33	152
44th St / Washington	Westbound	10%	13	30	23	27	93	25	72	65	47	209
7th Ave / Camelback	Eastbound	10%	17	27	14	17	74	33	59	23	28	143
7th Ave / Camelback	Westbound	10%	4	15	14	12	45	2	19	10	13	44
Campbell / Central Ave	Eastbound	10%	9	19	37	10	76	28	39	55	17	139
Campbell / Central Ave	Westbound	10%	3	11	33	8	55	6	17	35	4	62
Center Pkwy / Washington St	Eastbound	10%	6	8	3	6	23	7	15	2	4	28
Center Pkwy / Washington St	Westbound	10%	3	4	2	5	14	5	8	6	9	28
Central Ave / Camelback	Eastbound	10%	21	25	14	16	76	39	58	27	30	154
Central Ave / Camelback	Westbound	10%	3	8	10	7	28	5	12	8	8	33
Dorsey Ln / Apache Blvd	Eastbound	10%	4	9	9	12	34	12	16	10	11	49
Dorsey Ln / Apache Blvd	Westbound	10%	15	23	10	13	62	30	49	18	15	112

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Table 2-2b: Sampling Goals and Main Surveys Completed by Time of Day and Direction (Rail Only) (Continued)

Valley Metro 2015 Origin-Destination Survey Sampling Plan for RAIL STATIONS			SAMPLING GOALS FOR MAIN SURVEY					MAIN SURVEY COMPLETED				
STATION	Direction	SAMPLING RATE	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL	AM PEAK 6AM-859AM	MIDDAY 9AM-259PM	PM PEAK 3PM-559PM	NIGHT 6PM-559AM	TOTAL
EB 12th St / Jefferson	Eastbound	10%	8	10	6	8	34	24	30	13	5	72
EB 12th St / Jefferson	Westbound	10%	0	0	0	0	0	0	0	0	0	0
EB 24th St / Jefferson	Eastbound	10%	14	19	12	15	59	33	34	23	21	111
EB 24th St / Jefferson	Westbound	10%	0	0	0	0	0	0	0	0	0	0
EB 3rd St / Jefferson	Eastbound	10%	4	20	28	53	104	21	46	48	63	178
EB 3rd St / Jefferson	Westbound	10%	0	0	0	0	0	0	0	0	0	0
EB Jefferson / 1st Ave	Eastbound	10%	12	25	32	19	88	42	58	68	20	188
EB Jefferson / 1st Ave	Westbound	10%	0	0	0	0	0	0	0	0	0	0
EB Van Buren / 1st Ave	Eastbound	10%	22	58	42	36	158	137	215	131	68	551
EB Van Buren / 1st Ave	Westbound	10%	0	0	0	0	0	0	0	0	0	0
Encanto / Central Ave	Eastbound	10%	5	12	10	8	35	8	20	15	14	57
Encanto / Central Ave	Westbound	10%	3	7	6	5	21	7	12	18	13	50
Indian School / Central Ave	Eastbound	10%	26	50	31	21	128	51	96	60	39	246
Indian School / Central Ave	Westbound	10%	10	20	19	11	60	24	26	24	13	87
McClintock Dr / Apache Blvd	Eastbound	10%	3	8	8	10	29	5	13	10	10	38
McClintock Dr / Apache Blvd	Westbound	10%	40	53	23	26	143	47	83	45	41	216
McDowell / Central Ave	Eastbound	10%	15	42	29	20	106	55	81	46	38	220
McDowell / Central Ave	Westbound	10%	12	34	25	19	90	22	64	51	31	168
Mill Ave / Third St	Eastbound	10%	3	11	11	18	43	15	23	16	27	81
Mill Ave / Third St	Westbound	10%	10	23	23	42	100	25	76	47	61	209
Montebello / 19th Ave	Eastbound	10%	82	138	74	92	385	224	355	209	184	972
Montebello / 19th Ave	Westbound	10%	0	0	0	0	0	0	0	0	0	0
Osborn / Central Ave	Eastbound	10%	11	22	19	14	66	28	65	35	22	150
Osborn / Central Ave	Westbound	10%	5	13	11	9	38	10	22	21	20	73
Price-101 / Apache Blvd	Eastbound	10%	1	4	3	4	12	2	2	3	4	11
Price-101 / Apache Blvd	Westbound	10%	33	51	15	17	115	36	95	27	23	181
Priest Dr / Washington St	Eastbound	10%	21	42	35	46	144	33	45	56	35	169
Priest Dr / Washington St	Westbound	10%	9	15	21	17	63	24	49	54	28	155
Roosevelt / Central Ave	Eastbound	10%	8	16	11	10	46	25	37	16	23	101
Roosevelt / Central Ave	Westbound	10%	8	17	11	13	49	18	30	21	13	82
Smith-Martin / Apache Blvd	Eastbound	10%	4	8	6	7	26	4	8	8	5	25
Smith-Martin / Apache Blvd	Westbound	10%	7	13	6	8	35	14	22	7	13	56
Sycamore / Main St	Eastbound	10%	0	0	0	0	0	0	0	0	0	0
Sycamore / Main St	Westbound	10%	86	141	75	91	393	234	284	200	168	886
Thomas / Central Ave	Eastbound	10%	14	39	35	21	110	46	83	72	44	245
Thomas / Central Ave	Westbound	10%	12	23	22	14	72	25	41	21	26	113
University Dr / Rural Rd	Eastbound	10%	4	52	55	49	159	27	92	67	51	237
University Dr / Rural Rd	Westbound	10%	16	37	29	33	115	37	97	59	44	237
Veterans Way / College Ave	Eastbound	10%	6	28	29	28	91	23	48	32	34	137
Veterans Way / College Ave	Westbound	10%	14	42	38	34	128	48	115	92	65	320
WB 12th St / Washington	Eastbound	10%	0	0	0	0	0	0	0	0	0	0
WB 12th St / Washington	Westbound	10%	7	16	9	10	42	18	34	13	16	81
WB 24th St / Washington	Eastbound	10%	0	0	0	0	0	0	0	0	0	0
WB 24th St / Washington	Westbound	10%	9	20	13	14	56	20	33	32	21	106
WB 3rd St / Washington	Eastbound	10%	0	0	0	0	0	0	0	0	0	0
WB 3rd St / Washington	Westbound	10%	3	12	17	28	59	11	29	39	43	122
WB Van Buren / Central Ave	Eastbound	10%	0	0	0	0	0	0	0	0	0	0
WB Van Buren / Central Ave	Westbound	10%	48	84	53	36	222	129	197	100	62	488
WB Washington / Central Ave	Eastbound	10%	0	0	0	0	0	0	0	0	0	0
WB Washington / Central Ave	Westbound	10%	13	37	37	21	108	29	89	70	48	236
	GRAND TOTAL For RAIL		784	1551	1158	1135	4628	1963	3367	2245	1775	9350

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2.2.1 Assessment of Valley Metro Main Intercept Survey

Overall, the total number of surveys exceeded the contractual requirements by more than 4,500 rail surveys and 300 bus surveys. More information on the main intercept survey procedures and QA/QC process can be found Chapter 4 and Chapter 6.

2.2.2 Methods for Selecting Main Intercept Survey Participants

On bus routes, a random number generator was used to determine which passengers were asked to participate in the survey after boarding a bus at a particular stop. If four or more people boarded the bus, the surveyor would enter the number four into the tablet and the tablet PC randomly generated a number from one to four. If the answer was two, the second person who boarded the bus was asked to participate in the survey. If the answer was one, the first person was asked to participate in the survey, and so forth. The selection was limited to the first four people who boarded a bus at any given stop to ensure the interviewer could keep track of the passengers as they

boarded. The process was very similar for the rail line, with the exception of the placement of the surveyors. For example if there were three trains with three cars each for a particular rail line, then one surveyor would be placed in the first car of the first train, another surveyor would be placed in the second car of the second train, and a third surveyor would be placed in the third car of the third train. If multiple surveyors were placed on the train, then they were separated and placed into different cars. The surveyor then would focus on the door of the car they were assigned and used the random number generator previously described to determine which boarding passenger to survey.

There was also a contingency plan such that the interviewer would proceed sequentially through the boarders he tracked if a refusal occurred. For example, if four people boarded the route/rail, and the random number generator specified two, and if the second passenger refused to be interviewed, then the surveyor would approach the third passenger.

2.2.3 Timing of the Main Survey Administration

The main survey was administered at the time of day that coincided with the hours that each route was operational. This was to ensure that the administration of the survey began prior to peak ridership levels in the morning and continued after peak ridership levels in the evening. Most of the surveys were administered between the hours of 5 a.m. and 10 p.m.

The bulk of the main survey was administered during weekdays (Tuesday through Thursday) with the exceptions of national holidays, and school breaks observed by local colleges/schools from late March to late May 2015. Additional clean-up was conducted during November 2015. The data collected in November was only 0.7% of the total database.

2.3 Other Techniques that Were Used to Manage the Sample

2.3.1 Daily Reviews of Interviewer Performance

During each day, the research team evaluated the performance of each interviewer. This included a review of the characteristics of the passengers who were interviewed with regard to age, gender, race, the number of reported transfers, the number of required data fields that were completed, the number of desired data fields that were completed, and the average length of each interview. These reviews are completed while the surveyor is on the bus or train and the findings are discussed with that surveyor when they check in. This allowed the research team to provide immediate feedback to interviewers to improve their overall performance. It also allowed the research team to quickly identify and remove interviewers who were not conducting the survey properly.

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2.3.2 Management of the Sample by Time of Day

In addition to managing the total number of surveys that were completed for each route/station, ETC Institute also managed the number of surveys that were completed during each of the following four time periods: 6:00 a.m. to 9:00 a.m.; 9:00 a.m. to 3:00 p.m.; 3:00 p.m. to 6:00 p.m.; and 6:00 p.m. to 6:00 a.m. These four time periods correspond to time periods that are used for regional travel demand forecasting. This was done to ensure that the number of completed surveys for each time period would adequately support data expansion requirements for travel demand modeling. The data expansion process is described in Chapter 7 of this report.

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Chapter 3 PILOT TEST

ETC Institute conducted a pilot test of the Valley Metro Regional On-Board Transit Survey during the week of December 15-18, 2014. The purpose of the pilot test was to assess all aspects of the survey including: survey design, sampling methodology, implementation, and data processing tasks.

- The overall goal was to complete 200 on-to-off surveys and 200 full intercept surveys. The actual number of on-to-off surveys that were completed in the field was 724 (621 rail on-to-off surveys and 103 bus on-to-off surveys). Of these 702 we classified as useable (97% recovery rate).
- The actual number of full intercept surveys that were completed in the field was 221. Of these 208 were classified as useable (94% recovery rate).

3.1 Routes/Stations Involved

The pilot test was administered to transit riders on four bus routes and the light rail system between the hours of 8 a.m. and 6 p.m. on December 15 to18, 2014. The services that were included in the pilot test are listed below:

On-to-Off Bus Routes

- Route 7
- Route 30
- Route 72

On-to-Off Rail Line

- Light Rail

Main Survey Bus Routes

- Route 7
- Route 30
- Route 62
- Route 72

Mail Survey Rail Line

- Light Rail

3.2 Personnel and Training

A total of eight personnel participated in the pilot test. This included the project manager and one assistant project manager.

The specific positions and number of personnel who participated in the pilot test is listed below:

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Position	Number of Personnel
Project Manager (on-site)	1
Assistant PM (on-site)	1
Survey Team Leaders (on-site)	4
Interviewers (on-site)	2
Total Personnel	8

3.3 Training

All interviewers who participated in the pilot test participated in one day of training prior to the pilot test. The training activities that were covered included:

- An introduction to the project (purpose, scope, etc.) and training to use the tablet PCs.
- On-site reconnaissance of the routes and rail lines that were included in the pilot test. Team members rode each bus route that was included in the pilot test multiple times.
- Extensive training on survey administration and sampling procedures.
- Practical exercise to ensure that all interviewers were technically competent to perform all tasks that would be required in the field.

3.4 Assessment of Survey Length

The time it took survey participants to fully complete the survey on a tablet PC ranged from minimum of 4.91 minutes to a maximum of 10.62 minutes. The average time was 5.89 minutes.

3.5 Assessment of Survey Design

Overall, the survey design was very good. Interviewers did not have any difficulty administering the survey, and respondents did not seem to have difficulty understanding the questions. Although there were no major problems with the survey, our team is recommending the following changes:

3.5.1 DESIGN CHANGES FOR ADMINISTRATION AND TABLET PC PROGRAMMING

- On-to-off cards need to be in English and Spanish.
- Need to purchase new on-to-off cards.
- The pull down list for schools needs to be enhanced. Many key schools were missing.

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- The trip summary review screen was not properly linked to the original sections of the survey, which made it hard to make corrections if the initial information that was recorded was not correct.
- We need to have a SPANISH screen with instructions in Spanish to get phone numbers of Spanish speaking interviewers so the survey can be conducted by phone.

3.5.2 SPECIFIC SURVEY DESIGN FOR THE QUESTIONAIRRE

- Need a decline or refused option for annual household income question. A small percentage of respondents did not want to reply to this question. **RECOMMEND ADDING DECLINE TO ANSWER OPTION**
- Revise list of schools so that interviewer can find school quickly. **RECOMMEND USING ABBREVIATIONS I.E. ASU INSTEAD OF ARIZONA STATE UNIVERSITY.**
- Update skip logic so that if a student is coming from their school, the interviewer does not have to find the location of the school further down the survey since the location was captured during the destination identification. **RECOMMEND IMPROVING ALL SKIP PATTERNS TO IMPROVE OVERALL FLOW OF SURVEY**.
- Many riders stated that they used fares other than answer/options currently listed in the survey. **RECOMMEND REVIEWING POSSIBLE FARES AND UPDATING ANSWER CHOICES AND OPTIONS.**

3.6 Assessment of Sampling Procedures

There were no problems with the sampling procedures. The process for randomly selecting riders on buses and trains that is described in the work plan worked very well. No changes to the sampling procedures are recommended.

3.7 Assessment of Survey Participation and Usability of Surveys

3.7.1 On-to-Off Survey

The goal was to obtain 200 completed on-to-off surveys. The table below shows a breakout of the number of completed surveys by route.

Table 3.1: Completed On-to-Off Surveys by Route (Pilot Test)

On-to Off Survey						
Transit Agency	Route/Rail	GOAL for Completed Surveys	ACTUAL Number of Completed Surveys	Response Rate	Usable Surveys	% Useable
VM	Light Rail	105	621	98%	602	97%
VM	Route 7	35	36	99%	36	100%
VM	Route 30	25	28	97%	27	96%
VM	Route 72	35	39	97%	37	95%
	TOTAL	200	724	98%	702	97%

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When averaged by route, 98% of those who were asked to participate, agreed to participate. The highest rates of participation were on the light rail system and Route 7. Both had participation rates of over 98%. The lowest rate of participation was on Route 30 and 72 (97%).

The on-to-off survey on the light rail system was very productive. Over 600 useable surveys were collected by a team of just 3 people on one day (200 surveys per person).

There were a few minor difficulties with Spanish language riders, so the on-to-off cards will need to be have instructions in both English and Spanish.

Overall, 97% of the surveys that were completed were matched and plotted on the routes on which the survey was conducted. A match rate of 97% is the highest rate recorded during any of our pilot tests since the introduction of barcode scanning technology by ETC Institute. So the quality of the data was very good.

3.7.2 MAIN INTERCEPT SURVEY

The goal was to complete 200 main intercept surveys. The table below shows a breakout of the number of completed surveys by route.

Table 3.1: Completed Main Intercept Surveys by Route (Pilot Test)

Main Survey						
Transit Agency	Route/Rail	GOAL for Completed Surveys	ACTUAL Number of Completed Surveys	Response Rate	Usable Surveys	% Useable
VM	Light Rail	110	118	95%	114	97%
VM	Route 7	20	22	91%	20	91%
VM	Route 30	20	24	94%	22	92%
VM	Route 62	20	22	93%	20	91%
VM	Route 72	30	35	91%	32	91%
	TOTAL	200	221	93%	208	94%

When averaged by route, 93% of those who were asked to participate agreed to participate. The highest rate of participation was on the light rail system. The lowest rate of participation was on Route 72 and 7.

3.8 Short Trip Participation

Among those who agreed to complete the survey, 14 indicated that they did not have time to complete the full version of the survey. All 14 people provided their name and phone number so ETC Institute could call them later to conduct the survey by phone. ETC Institute's call center was able to successfully complete the survey with 12 of the 14 individuals who had a trip that was too short to complete on-board.

3.9 Assessment of Refusals

A total of 17 refused to complete the survey. Of these:

<u>Reasons for Refusals</u>

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- Ten did not give a reason
- Two did not participate because the respondent did not speak English
- Five were busy doing something else

Profile of Refusals

- Nine were men and six were women
- Nine were African American, two were White, and six were Hispanic

3.10 Spanish Surveys

A total of five surveys were administered in Spanish. Of these, one did not speak English at all and four spoke some English.

Of the five Spanish surveys, four were completed as face-to-face interviews and one were completed by phone. Several Spanish surveys were handed out with a postage paid envelope marked for return. None of these Spanish surveys were returned by mail.

3.11 Assessment of Survey Quality

A total of 238 passengers were asked to participate in the pilot test. Of these, 221 agreed to participate (93%).

Of the 221 surveys that were completed, 208 passed the first two phases of ETC Institute QA/QC review, which are conducted in the field and immediately after the data is retrieved. This means that 94% (208 of 221) of the data collected for the pilot test has been deemed “usable”.

3.12 Conclusions

Based on the results of the pilot test, ETC Institute recommended to proceed with the administration of the survey as scheduled with the minor modifications to the survey instrument described in section 3.5.

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Chapter 4 SURVEY ADMINISTRATION

The following sections describe the survey administration methodology used for the 2014-2015 on-board study. This methodology includes recruiting and training of interviewers, organization of the survey teams, and procedures used for the surveys.

4.1 Recruiting and Training Interviewers

Assembling a team of high-quality surveyors was one of the most important steps in any administration process. For this project, ETC Institute complemented its team of supervisors with temporary surveyors who were local to the area. Surveyors recruited by the staffing agency were required to have a familiarity with the service areas, a solid work history, ability to work with the public, a professional attitude and appearance, and an ability to operate a tablet PC and become proficient with both ETC Institute's software program and procedures.

Each surveyor was required to attend ETC Institute's training session for both the on-to-off survey and main intercept survey. During this training session, surveyors were taught how to operate the tablet PCs and the suitable software, execute the suitable surveying procedures, and deal with various situations that could be encountered during their surveying period.

The surveyor training was conducted in a classroom style setting at a local hotel meeting room. The classroom provided ETC Institute a quiet and convenient location to train its team efficiently. The training was provided to all personnel who participated in the administration of both the on-to-off Survey and main intercept survey to ensure that they were fully prepared for the project; the content included:

- Overview of the on-board survey objectives
- Either main intercept or on-to-off equipment/software overview and training
- Either main intercept or on-to-off barcode administrating procedures
- One-on-one tutoring/ mock interview with an ETC Institute supervisor
- Overview of rules and procedures and a code of conduct to be followed while representing Valley Metro and ETC in the field.

Once the training was completed, and an ETC Institute supervisor approved of each surveyor's abilities in the classroom, the surveyors then spent several days in the field under the supervision of an ETC field supervisor who assessed each surveyor's ability to properly conduct the surveying procedures. Surveyors who did not demonstrate proficiency in all of the required tasks were released.

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4.2 Organization of the Survey Team

The organizational structure of each type of survey is described in the following sections:

4.2.1 Organization of the On-to-Off Survey Team

The on-to-off survey was administered by teams that were directly managed by an ETC Institute supervisor. The supervisors were responsible for reviewing the performance of each team and ensuring that all parts of the on-to-off procedure were being followed and the sampling goals for each route were met. The supervisors operated from centralized locations, such as transit centers, so that the performance of all teams could be evaluated.

The on-to-off survey team sizes for buses were determined by route ridership levels and bus size (articulated [3+ doors] or standard [1-2 doors]). A typical team consisted of two members, based on a medium to high-ridership level and a standard size bus. On-to-off teams were typically deployed on at least two buses running in opposite directions. For high-volume routes, teams may have been deployed on up to four buses on a route. On low-volume routes, teams may have been deployed on just one bus serving the route. The responsibilities of each of the positions on the on-to-off teams are described:

- The **team leader** was responsible for route and direction selection for on-to-off software, offering riders an opportunity to participate in the survey, scanning barcode cards for boarding riders, answering rider questions, and overseeing on-to-off operations of his/her bus.
- The **support surveyor** was responsible for collecting and scanning barcode cards for alighting riders, reminding riders to keep their cards ready to hand in to a surveyor when they exited at their bus stop, and answering rider questions.

For rail lines, an online tablet survey was used in place of the scanning technology that allowed an interviewer to ask rail users which station they boarded their current train and which station they would alight. The shortness of this two question survey, and the high level of knowledge regarding the boarding and alighting location by the rail users, allowed for one surveyor to survey essentially every rider per train car. One surveyor per car, per train could effectively administer the on-to-off survey to each rail rider.

4.2.2 Organization of the Main Intercept Survey Team

The main survey was administered by teams who were directly supervised by an ETC Institute supervisor. The supervisors were responsible for reviewing the performance of each interviewer ensuring that all parts of the surveying procedure were being followed and the sampling goals for each route were met. The supervisors operated from

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centralized locations, such as transit centers, so that the performance of all interviewers could be evaluated.

Interviewers were typically deployed on at least two buses of the same route running in opposite directions. On high-volume routes, interviewers may have been deployed on up to six buses on a route. On low-volume routes, interviewers may have been deployed on just one bus serving the route. For the rail, the number of surveyors placed on each route was dependent on how many rail cars and trains there were for each line. For example if there were three trains with three cars each for a particular rail line, then one surveyor would be placed in the first car of the first train, another surveyor would be placed in the second car of the second train, and a third surveyor would be placed in the third car of the third train.

The responsibilities for each of the positions on the Main Survey team are the following:

- The **Field Supervisor** was responsible for ensuring that interviewers were properly trained, equipping interviewers to conduct surveys, scheduling interviewers, inspecting work, and reviewing the data collected.
- The **Main Intercept Surveyor** was responsible for administering surveys while following surveying procedures.

4.3 Survey Administration Procedures

The Administration Procedures of each type of survey is described in the following sections:

4.3.1 On-to-Off Program Procedure

The purpose of the on-to-off survey is to identify ridership patterns based on an individual's boarding and alighting locations which are used to help develop the sampling plan for the Main Survey.

The on-to-off bus surveying team used the on-to-off software with a GPS-equipped tablet PC to record the rider's boarding latitude/longitude, alighting latitude/longitude, time of usage, route used, and inbound/outbound direction. The on-to-off software was complemented with a barcode scanning system method as described:

- Riders were asked to participate in the on-to-off ridership pattern survey as they entered the bus.
- Riders who agreed to participate were handed a barcode card which was scanned by a surveyor.
- Riders were told to keep the barcode card for the duration of their trip.
- Riders were reminded to hand their cards back to the surveyor as they exited the bus.

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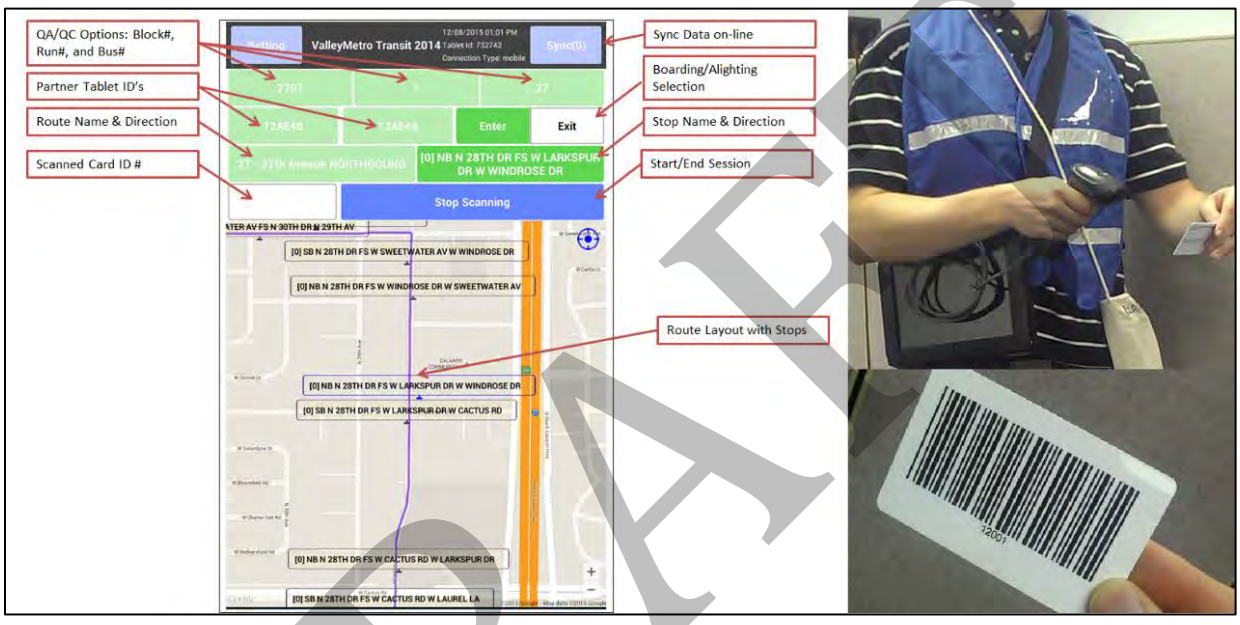
- When riders' bus stops were approached, the surveyor took their barcode cards before they exited. The surveyor scanned riders' barcode cards as they departed the bus.
- The software then paired the boarding and the alighting location of each rider based on the unique barcode card each was handed.

A screen shot of the interface of the on-to-off boarding/alighting software that was used to record the information and a picture of a barcode card is shown in Figure 4-1.

Figure 4-1. On-to-Off Survey Scan Card Screenshot (BUS)



For rail lines, a tablet survey was used that allowed an interviewer to ask rail users which station they boarded their current train and which station they would alight. This was used in place of the scanning technology used on buses because unlike bus users, essentially all rail users know the name of the locations at which they board and alight. After the surveyor entered the route and direction, the time of usage was recorded automatically during the survey. A screen shot of the interface of the rail on-to-off survey that was used to record the information is shown in Figure 4-2.

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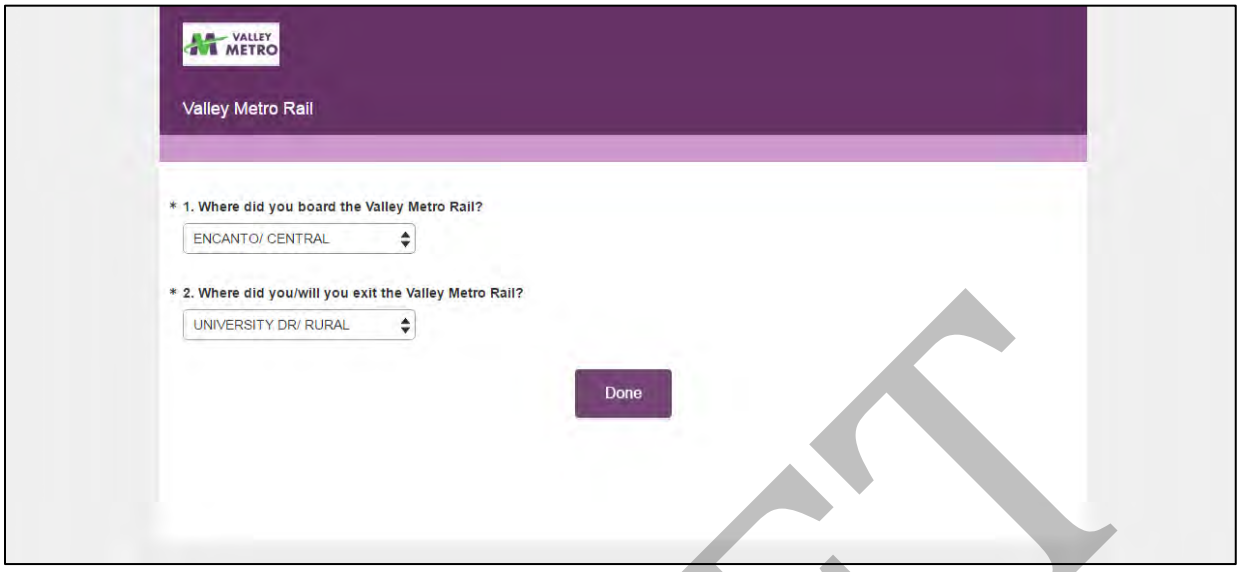
Figure 4-2. On-to-Off Survey Tablet Version Screenshot (RAIL)



4.3.2 Main Intercept Survey Administration Procedure

PRIOR TO ADMINISTRATION OF THE MAIN INTERCEPT SURVEY

Prior to administration of the main survey, the results of the on-to-off survey were reviewed to ensure the survey team fully understood the trip patterns along each route. Some of the specific aspects of the on-to-off survey data that were reviewed included:

- Whether any pairs of stops along a route account for at least 10% of the one-way trips that were completed on the route during a particular time period.
  - If a high percentage of trips along a given route involved the same set of boarding and alighting pairs, ETC Institute placed additional interviewers on buses to be sure these trips were captured. Without the on-to-off data, these trips may have been underrepresented using traditional sampling techniques.
- The percentage of boarding/alighting pairs along each route that were “short trips”, which means the distance between the boarding and alighting locations was less than one mile.
  - If more than 10% of the records from the on-to-off survey for a given route involved boarding/alighting pairs that were less than one mile apart, additional interviewers were staffed on the route and interviewers were told to conduct the full interview even if the rider said that he/she did not have enough time to complete the survey. Two options were available to finish the survey: callback option or the interviewer would get off the bus with the rider and complete the survey after getting off the bus.

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DURING THE ADMINISTRATION OF THE MAIN INTERCEPT SURVEY

Local bus routes are routes that provide regular/continuous service throughout the day. Local bus routes and rail lines were surveyed using the tablet PCs, as described in Section. Since local routes have more frequent stops than express routes and shorter ride times for the passenger, an interviewer conducting the survey via tablet PC was deemed necessary in order to achieve the desired response rates.

Once an interviewer had selected a person for the survey, the interviewer did the following:

- Approached the person who was selected and asked him or her to participate in the survey.
- If the person refused, the interviewer ended the survey.
- If the person agreed to participate, the interviewer asked the respondent if he/she had at least five minutes to complete the survey.
- If the person did not have at least five minutes on the bus, the interviewer asked the person to provide his/her home address, boarding location, alighting location, name, and phone number. Within 24 hours, a phone interviewer from ETC Institute's call center contacted the respondent and asked him/her to provide the information by phone. This methodology ensured that people who completed "short-trips" on public transit were well-represented.
- If the person had at least five minutes on the bus, the interviewer began administering the survey to the respondent as a face-to-face interview using a tablet PC. After all of the required questions had been answered, the interviewer asked the respondent if he or she had two to three more minutes to complete the desired questions. If the respondent agreed, the interviewer then asked the remaining questions on the survey. Interviewers working in ETC Institute's call center then called respondents who did not have the two to three minutes to complete the desired questions at a later date.

An express service routes is a bus service type that is intended to run faster than normal bus services between the same destination points. This type of bus service usually runs with limited stops and during peak hours only. The surveyed bus routes classified as express service routes were the Valley Metro 500 series and majority of the Rapid Bus routes. Routes that were classified as express routes were surveyed by interviewers using the self-administered, printed questionnaires, as described in Chapter 1. Interviewers distributed the printed surveys and pencils to boarding riders.

Once a rider finished a survey, an interviewer conducted a short-version interview with the rider to ensure that all questions were answered properly and then made corrections/additions to the survey as necessary. After corrections/additions were made, the interviewer initialed the printed survey for submittal.

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AFTER THE ADMINISTRATION OF THE MAIN INTERCEPT SURVEY

Surveys submitted with tablet PCs went under a pre-approval phase by an ETC Supervisor in real-time using ETC Institute's survey program's on-line database to ensure that the following information had been provided:

- Type of place where the trip began/ended
- Complete address where the trip began/ended
- Mode of access to the transit system
- Boarding location/Alighting location
- Mode of egress from the transit system
- Respondent's home address
- Respondent's employment status
- Respondent's student status
- Respondent's driver's license status
- Respondent's age
- Number of operating vehicles available in the household
- Number of occupants in the respondent's household
- Number of workers (employed persons) in the respondent's household
- Annual household income
- Time of day the survey was completed

If any information was missing or incomplete, the supervisor flagged the record for reviewing. ETC Institute's Project Manager then forwarded all flagged survey records and the corresponding name and phone number to ETC Institute's call center. Interviewers working in ETC Institute's call center then called respondents who had provided their names and phone numbers to retrieve the missing information by phone.

Express route surveys were physically reviewed by an ETC manager to ensure that the same information had been provided. The printed surveys were then sent to ETC Institute's data entry department to be entered. Those surveyed on express routes were sometimes called by ETC Institute's call center to retrieve any missing information by phone.

Once survey records were classified as complete, meaning all of the required information had been collected, the records were forwarded to ETC Institute's geocoding manager, who then finalize the home, origin, boarding, alighting, and destination geocoded locations. Afterwards, ETC Managers and SRRT (Survey Records Review Team) were also able to check survey trip logic by being able to review the main survey's origin-boarding-alighting-destination on a single screen to begin the quality control data review process. See Chapter 5 and Chapter 6 for more information about SRRT and the quality control data review process.

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Chapter 5 GEOCODING PROCESS

5.1 Process for Geocoding Address Records

Each transit survey record conveys information about five physical locations: trip origin, trip destination, boarding stop (where the transit user boarded the transit vehicle on which he/she was surveyed), alighting stop (where the transit user exited the bus or train on which he/she was surveyed), and the home/residence location of the transit user. Because the vast majority of the data collection occurred on the tablets using real time geocoding, converting the data into a consistent format for street names, street numbers, zip codes, and landmarks was an automated process.

5.1.1 Boarding and Alighting Geocoding

Effective route geocoding depends mainly on the initial quality of the stop data. These pre-configured lists contained bus route numbers, bus stop names, and train station names. Figure 5-1 (below) shows a screen shot from the tablet PC that allowed interviewers to precisely record boarding and alighting locations while the survey was being administered.

Figure 5-1: Tablet PC Boarding and Alighting Locations

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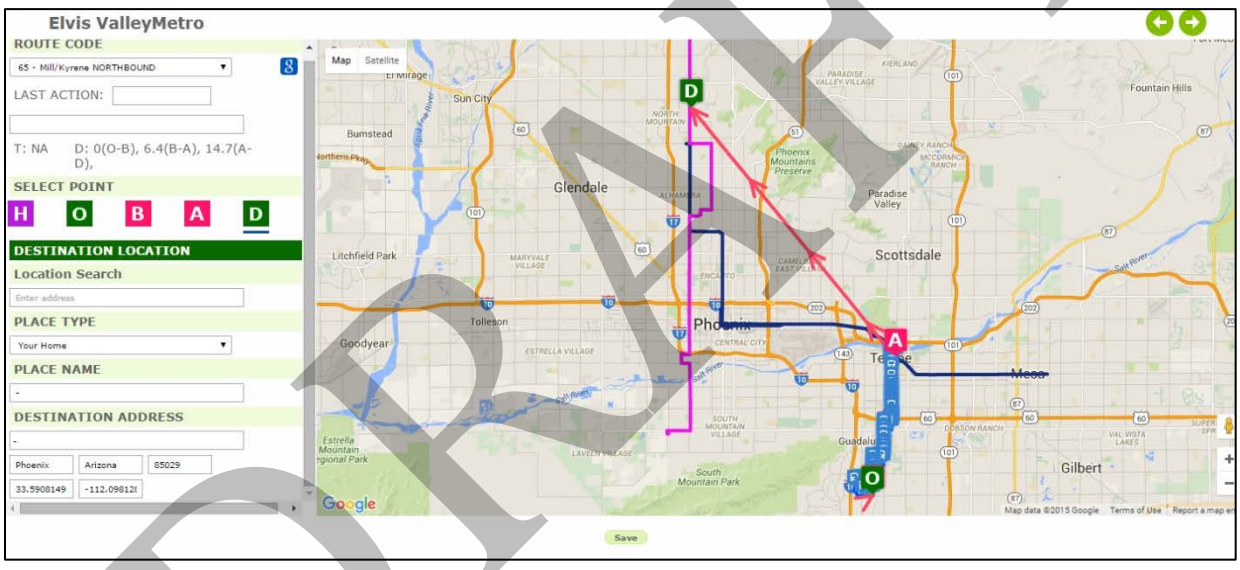
5.1.2 Origin and Destination Geocoding

The survey's mapping feature via Google Maps allows the surveyor to tag addresses remotely. If the surveyor is unable to find any location; they are able to provide descriptive building names, street names, and city names for later geocoding.

All of these types of records were pulled aside and manually corrected and geocoded using ETC Institute's Visual Survey Editor Program (VSEP), depicted in Figure 5-2. This program connects in real-time to an online mapping system and provides address auto-complete and instant map preview of candidate locations to help identify and fix addresses. VSEP allows the editor to view all five points concurrently and to manually adjust point positions on the map to better match their physical locations. This program helps to significantly speed up the survey record review and editing process and helps reduce error rates.

Figure 5-2: Visual Survey Editor Program (VSEP)



5.1.3 Post-Field Geocoding

All geocoded results were checked for errors recursively, until all five locations within a record were completely geocoded or until a record was declared unfit for further processing. Error checks included comparing attributes derived from the geocoded coordinates to those recorded during the field survey, e.g. city name. Quality checks also comprised proximity tests between the geocoded boarding or alighting locations and the known bus stop locations or line segment representing the bus route. Some of the proximity tests and corrections were performed within TransCAD using custom scripts developed for this project in Geographic Information System Developer's Kit (GISDK). Distances between each consecutive pair of trip points were also computed as a basis of logic checks used to flag records for further (typically manual) verification and correction.

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Chapter 6 DATA REVIEW PROCESS (QA/QC)

Many of the processes described in the first six chapters of this report were essential elements of the overall quality assurance/quality control (QA/QC) process that was implemented throughout the survey administration process. The establishment of specific sampling goals and procedures for managing the goals ensured that a representative sample was obtained from each bus route and rail line. Training of interviewers and the high levels of oversight provided by team leaders and the project manager ensured that the survey was administered properly. Also, the use of the latest geocoding tools contributed to the high quality of geocoding accuracy that was achieved. The following sections describe the QA/QC processes that were implemented after the data was collected.

6.1 Process for Identifying Completed Records

To classify a survey as being completed, the record must contain all required data. Required data involved questions for which a response from a respondent was required in order for the survey to be considered complete. At a minimum, the full intercept survey was designed to gather the following information:

- Origin/Destination address
- Boarding/Alighting location
- Home address
- Access/Egress mode
- Trip purpose/type of place at the origin
- Trip purpose/type of place at the destination
- Number of transfers
- Transfer routes
- Rail Transfer Stations
- Time of Day Trip was completed
- Direction of travel
- Access location to transit
- Egress location from transit
- Method of payment
- Number of vehicles available to the household
- Number of household occupants
- Student status
- Employment status
- Driver's licenses status
- Age
- Disability status
- Race/Ethnicity
- Gender
- Income
- English language ability

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A completed survey must also contain answers to at least 90% of the desired questions which include:

- Distance walked from the origin to the transit system (if applicable)
- Distance walked from the transit system to the destination (if applicable)
- Park and ride location (if applicable) on either end of the trip
- Veteran Status
- How respondents get transit schedule information
- Name of the school where the respondent attends college or school (if applicable)

6.2 Process for Identifying Useable Surveys

Once a survey had been classified as being complete, the next phase of the QA/QC process was to determine the usability of each survey record. The term useable was used to identify records that passed all of the QA/QC tests after it was classified as being complete. In this section, the QA/QC tests conducted are described.

6.2.1 Pre-processing Tests

The first step in this process involved the application of a series of QA/QC tests that were conducted before the address fields were processed for geocoding. Some of the specific checks that were conducted during the pre-processing phase included the following:

- Checking that *home* street names, city names, and zip codes can be geocoded;
- Checking that *origin* street names, city names, and zip codes can be geocoded;
- Checking that *destination* street names, city names, and zip codes can be geocoded;
- Checking for *origin* place names that could be matched to a pre-existing list of major destinations that had been previously geocoded;
- Checking for *destination* place names that could be matched to a pre-existing list of major destinations that had been previously geocoded;
- Ensuring the number of household occupants was greater than or equal to the number of employed members of the household;
- Ensuring the respondents who indicated that they were employed also reported that at least one member of their household was employed;
- Ensuring that bus route names were consistently spelled and coded correctly;

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- Ensuring that transfers to a bus route were possible;
- Ensuring that transfers from a bus route were possible;
- Ensuring that the number of vehicles available to a respondent's household were consistent with the respondent's reported annual household income. Low income families who reported owning many vehicles and high income families that reported no vehicles were flagged;
- Ensuring the time of day a survey was completed was reasonable given the published operating schedule for the route;
- Ensuring the origin type of place code matched the type of place reported by the respondent; and,
- Ensuring the destination type of place code matched the type of place reported by the respondent.

Records that did not pass all of the tests were sent to ETC Institute's Survey Records Review Team (SRRT) for further review. Based on the type of issues found with the record, the SRRT members then took one of the following actions:

- They corrected the deficiency in the record.
- They directed ETC Institute's Call Center to contact the respondent by phone (if a phone number was available) to retrieve additional information or to confirm whether or not their responses were correct.
- They reclassified the record as ***incomplete*** by assigning a value of "3" for the record's quality control flag. This assignment removed the record from further inclusion in the final survey database.

Records that passed all the pre-processing QA/QC tests were forwarded to ETC Institute's geocoding team. See Chapter 5 for Geocoding Process.

6.2.2 Post-processing Tests

After all five addresses were successfully geocoded; the next step in this process involved the application of a series of QA/QC tests:

- Ensuring the origin and destination addresses were not the same
- Ensuring the boarding and alighting addresses were not the same
- Ensuring that the respondent did not list the same route as both a "transfer from" and a "transfer to" during their one-way trip
- Checking to be sure the access mode was appropriate given the distance of travel from the trip origin to the place where the respondent initially accessed transit. For example, if a rider reported that he/she accessed transit by car but the distance from his/her origin to the entry point for transit was less than 0.25 mile, the record would have been flagged for further review. Similarly, if a respondent reported that he/she walked to transit but the distance from the

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origin to transit was more than two miles, the record would have been flagged to check for a missing transfer since two miles or more is well beyond typical walk distance.

- Checking to ensure that the egress mode was appropriate given the distance of travel from place where the respondent exited the transit system to his/her destination
- Reviewing the total distance the respondent traveled on transit compared to the distance the respondent traveled from the origin to the destination for his/her trip. For example, if a respondent reported traveling six miles on transit in order to travel 0.5 mile from the origin to the destination for his/her trip, the record would have been flagged for further review. Similarly, if a respondent reported traveling just one mile on transit to complete a 10-mile trip, the records would have been flagged to check for a missing transfer.

Records that were flagged for further review were forwarded to the appropriate section based on the nature of the flag.

- Issues that involved address geocoding assignments were referred to ETC Institute's geocoding team.
- Issues that needed clarification of data were directed to ETC Institute's Call Center (if a phone number was available). The Call Center then contacted the respondent to retrieve additional information as needed. If respondent was unable to be contacted, final assessment of the records were approved by Senior Management.
- All other issues were directed to ETC Institute's SRRT.

Records that passed all the post-processing QA/QC tests or that were corrected were then forwarded to ETC Institute's SRRT for a final visual inspection of the trip using the Visual Survey Editor Program (VSEP), which is described in the following section. Records that were complete but could have problems with the trip logic or other attributes of the trip were reclassified as ***problematic*** by assigning a value of "2" as the record's Quality Control Flag. This assignment removed the record from further consideration for the final survey database.

6.2.3 Visual Inspection

The final step of the QA/QC data review process involved a visual inspection of the trip record using the VSEP. The key tasks that were conducted as part of this visual inspection included the sensibility of results for the following areas:

- Key variables of survey trips with very short distances (less than one mile for local bus trips and less than four miles for express trips). The key variables reviewed were the four major geocoded points (origin, destination, boarding, alighting) of the trip. If the review of the trip indicated an illogical pattern, it wasn't included in the final expanded database.

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- Trips with zero transfers given location of boarding and alighting locations relative to the origin and destination
- Trips that reported three or more transfers
- Drive access/egress trips given the distance traveled by car relative to the distance traveled by bus or light rail
- Drive access/egress trips with more than one transfer
- Looking at the origin-to-destination to ensure that it was appropriate for the survey route that was used for the trip
- Finalize trip logic by reviewing the origin-boarding-alighting-destination locations on a single screen.

If a record passed all the visual checks listed, the record was classified as ***useable*** and tagged for inclusion in the final survey database by assigning a value of "1" as the record's Quality Control Flag.

If a record did not pass all the visual checks, the record was sent back to the SRRT for further review. If the SRRT was not able to resolve the problem that was identified, the record was reclassified as problematic by assigning a value of "2" as the record's Quality Control Flag. This assignment removed the record from further consideration for the final survey database.

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Chapter 7 DATA EXPANSION PROCESS

This chapter describes the data sources and data expansion process used for the transit survey. The surveys of the light rail were expanded by route, time of day, and direction, and the boarding station and corresponding alighting station of the rider. A second expansion was performed for the light rail by route, time of day, direction, and a cluster of boarding stations and corresponding cluster of alighting stations of the rider. For the bus surveys in the project, the surveys were expanded by route, time of day, and direction, and by the boarding segment and corresponding alighting segment of the rider. The data expansion process is explained in more detail in the following sections.

7.1 Sources of Ridership Data

The source of the APC and fare box counts data came from Valley Metro. The APC data used to fine tune the collection and conduct the expansion was from April 2015.

7.2 Unlinked Trip Weighting Factors for Light Rail

While the number of passengers that board and alight at each station is important, the next step is learning flows so we know where a passenger boards and then where that same passenger alights and can expand the data using it. In order to estimate actual ridership between stops along the rail system, an on-to-off survey was administered with the goal of obtaining a sample of approximately 20% of the rail passengers.

Figure 7-1 shows the results for the on-to-off survey that was administered on the light rail eastbound during the *midday* time period. Each row in the table identifies the station where passengers boarded the train. The columns in the table identify the stations where people alight the train. The lines on the table define how stations were sorted into boarding station groups and alighting station groups for this particular route, direction, and time of day. From Figure 7-1, one can see that 230 people from the on-to-off survey boarded at 19th Ave/Camelback, 7th Ave/Camelback, or Central Ave/Camelback. Of those 230 people, 50 people from the on-to-off survey alighted at either Campbell/Camelback, Indian School/Central, Osborn/Central, Thomas/Central, or Encanto/Central.

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Figure 7-1: Valley Metro Rail Data Expansion Table Results of On-to-Off Survey (Cluster Version)

TABLE 1: RESULTS OF THE ON-TO-OFF SURVEY
3pm to 6pm East — ACTUAL RIDERSHIP COUNTS FROM THE ON/OFF SURVEY

Stop Name	Total	Montebello / 19th Ave	19th Ave / Camelback	7th Ave / Camelback	Central Ave / Camelback	Campbell / Central Ave	Indian School / Central Ave	Osborn / Central Ave	Thomas / Central Ave	Encanto / Central Ave
Montebello / 19th Ave	377			95				74		
19th Ave / Camelback										
7th Ave / Camelback										
Central Ave / Camelback	230			8				50		
Campbell / Central Ave										
Indian School / Central Ave										
Osborn / Central Ave										
Thomas / Central Ave										
Encanto / Central Ave	411							39		

Figure 7-2 shows the distribution of the data in Figure 7-1 as a percentage of all boardings for the light rail line for that direction and time period. Since there are a total of 2,013 on-to-off surveys, one can calculate that 2.48% (50/2013) of all trips during the eastbound *midday* time period board at either 19th Ave/Camelback, 7th Ave/Camelback, or Central Ave/Camelback and alight at either Campbell/Camelback, Indian School/Central, Osborn/Central, Thomas/Central, or Encanto/Central.

Figure 7-2: Valley Metro Rail Expansion Table Distribution of On-to-Off Survey (Cluster Version)

TABLE 2: DISTRIBUTION OF THE ON-TO-OFF SURVEY
3pm to 6pm East — PERCENTAGE DISTRIBUTION OF RIDERSHIP COUNTS FROM THE ON/OFF SURVEY

Stop Name	Total	Montebello / 19th Ave	19th Ave / Camelback	7th Ave / Camelback	Central Ave / Camelback	Campbell / Central Ave	Indian School / Central Ave	Osborn / Central Ave	Thomas / Central Ave	Encanto / Central Ave
Montebello / 19th Ave	18.73%	0.00%		4.72%				3.68%		
19th Ave / Camelback										
7th Ave / Camelback										
Central Ave / Camelback	11.43%	0.00%		0.45%				2.48%		
Campbell / Central Ave										
Indian School / Central Ave										
Osborn / Central Ave										
Thomas / Central Ave										
Encanto / Central Ave	20.42%	0.00%		0.00%				1.94%		

The actual light rail Line total ridership for this time period and direction (5,920) was applied to the on-to-off survey distribution shown in Figure 7-2. This calculation develops an initial estimate of the ridership flow based on the station-on to the station-off for the light rail Line eastbound *midday* ridership as shown in Figure 7-3. Based on this estimate, 147 trips (calculated by multiplying 5,920 by 2.48%) during the light rail eastbound *midday* time period board at either 19th Ave/Camelback, 7th Ave/Camelback, or Central Ave/Camelback and alight at either Campbell/Camelback, Indian School/Central, Osborn/Central, Thomas/Central, or Encanto/Central.

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Figure 7-3: Valley Metro Rail Expansion Table Initial Estimate of Ridership Flows Between Stations (Cluster Version)

TABLE 3: INITIAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN STATION
(percentages in table 2 were applied to the total boardings for this time period in this direction)
3pm to 6pm East — PROJECTED RIDERSHIP BASED ON THE ON-TO-OFF SURVEY

STATION	Total	Montebello / 19th Ave	19th Ave / Camelback	7th Ave / Camelback	Central Ave / Camelback	Campbell / Central Ave	Indian School / Central Ave	Osborn / Central Ave	Thomas / Central Ave	Encanto / Central Ave
Montebello / 19th Ave	1109	0	279			218				
19th Ave / Camelback 7th Ave / Camelback Central Ave / Camelback	676	0	26			147				
Campbell / Central Ave Indian School / Central Ave Osborn / Central Ave Thomas / Central Ave Encanto / Central Ave	1209	0	0			115				

Since the on-to-off survey did not cover 100 percent of the light rail boardings and alightings, the distribution in Figure 7-3 was compared to the actual boardings and alightings collected for each major station. The top portion of Figure 7-4 shows the actual average boarding and alighting counts for each station group on the route which was provided by the transit agency. The bottom portion of Figure 7-4 shows the difference between the initial estimate boardings and alightings at each station (From Figure 7-3) and the actual boarding and alighting counts. In the tables provided, the actual boardings and initial estimate of boardings for 19th Ave/Camelback, 7th Ave/Camelback, or Central Ave/Camelback are 578 and 479 respectively; the difference between these numbers is 98 as shown in Figure 7-4.

Figure 7-4: Valley Metro Rail Expansion Table Actual Boardings and Alightings by Station (Cluster Version)

TABLE 4: ACTUAL BOARDINGS and ALIGHTINGS BY STATION
3pm to 6pm East

Average Weekday Ridership	Total	Montebello / 19th Ave	19th Ave / Camelback	7th Ave / Camelback	Central Ave / Camelback	Campbell / Central Ave	Indian School / Central Ave	Osborn / Central Ave	Thomas / Central Ave	Encanto / Central Ave
Calculated BOARDINGS	5920	737	538			1327				
Adjusted ALIGHTINGS to match Boardings	5920	0	270			578				
DIFFERENCE FROM PROJECTED										
ACTUAL BOARDINGS	0	-372	-139			118				
ADJUSTED ALIGHTINGS	0	0	-35			98				

In order to develop a more accurate estimate of the ridership flow between major stations on each route, ETC Institute developed an iterative proportional fitting algorithm to balance the differences between the initial estimate ridership from the on-to-off Survey (shown in Figure 7-3) and the actual counts at each station (shown in Figure 7-4).

The key steps to the iterative process are described here. This process was conducted separately for time of day, and direction.

Step 1: Correction for the Boardings. For each boarding station group, the initial estimated ridership from the on-to-off data (shown in Figure 7-4) was multiplied by the ratio of the actual boardings from light rail counts to the estimated boardings. For

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example, if the actual boardings for Boarding Station Group A were 120 and the estimated boardings were 100, each cell associated with Boarding Station Group A would have been multiplied by 1.2 (120 / 100) to adjust the estimated boardings to actual boardings.

Step 2: Correction for the Alightings. Once the correction in Step 1 was applied, the estimated boardings would have equaled the actual boardings. However, the adjustment to the boardings total may have changed the alighting estimates. In order to correct the alighting estimate for each alighting station group, the new values calculated in Step 1 were adjusted by multiplying the ratio of the actual alightings to the estimated alightings from Step 1. For example, if the actual alightings for Alighting Station Group B were 220 and the estimated alightings from Step 1 were 200, each cell associated with Alighting Station Group B would have been multiplied by 1.1 (220 / 200) to adjust the estimated alightings from Step 1 to actual alightings.

The processes described in Steps 1 and Steps 2 were repeated sequentially until the difference between both the actual boardings and estimated boardings, and actual alightings and estimated alightings were zero. After four balancing iterations in this algorithm, there were no differences between the projected distribution and the actual boardings and alightings for the light rail eastbound *midday* time period. The total amount of balancing iterations depends on the number of route segments based on time of day, and direction. More variation among these factors can cause a greater amount of balancing.

After the iterative proportional fitting algorithm was applied, the final estimate for ridership flows was developed and is shown in Figure 7-5.

Figure 7-5: Final Estimate of Ridership Flows Between Stations (Valley Metro Light Rail)

TABLE 6: FINAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN STATIONS
3pm to 6pm East

Stop Name	Total	Montebello / 19th Ave	19th Ave / Camelback	7th Ave / Camelback	Central Ave / Camelback	Campbell / Central Ave	Indian School / Central Ave	Osborn / Central Ave	Thomas / Central Ave	Encanto / Central Ave
Montebello / 19th Ave	737	0		240				196		
19th Ave / Camelback 7th Ave / Camelback Central Ave / Camelback	538	0		29				171		
Campbell / Central Ave Indian School / Central Ave Osborn / Central Ave Thomas / Central Ave Encanto / Central Ave	1327	0		0				209		

The actual number of main surveys that were completed by boarding station group and alighting station group is shown in Figure 7-6. To calculate the expansion weight factors for each boarding station group and alighting station group pair that is shown Figure 7-7, the final estimate of ridership shown in Figure 7-5 was divided by the actual number of main surveys shown in Figure 7-6. For example, the final weight for those people

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boarding at either 19th Ave/Camelback, 7th Ave/Camelback, or Central Ave/Camelback and alight at either Campbell/Camelback, Indian School/Central, Osborn/Central, Thomas/Central, or Encanto/Central is 170.9/25.37 = 6.74.

Figure 7-6: Number of Completed main surveys (Valley Metro Light Rail)

TABLE 7: NUMBER OF COMPLETED SURVEYS
3pm to 6pm East

Stop Name	Total	Montebello / 19th Ave	19th Ave / Camelback	7th Ave / Camelback	Central Ave / Camelback	Campbell / Central Ave	Indian School / Central Ave	Osborn / Central Ave	Thomas / Central Ave	Encanto / Central Ave
Montebello / 19th Ave	231	0	37			46				
19th Ave / Camelback 7th Ave / Camelback Central Ave / Camelback	112	0	2			25				
Campbell / Central Ave Indian School / Central Ave Osborn / Central Ave Thomas / Central Ave Encanto / Central Ave	268	0	0			26				

Figure 7-7: Weight Factors (Valley Metro Light Rail)

TABLE 8: WEIGHTING FACTORS (Values in Table 6 divided by Values in Table 7)
3pm to 6pm East

Stop Name	Total	Montebello / 19th Ave	19th Ave / Camelback	7th Ave / Camelback	Central Ave / Camelback	Campbell / Central Ave	Indian School / Central Ave	Osborn / Central Ave	Thomas / Central Ave	Encanto / Central Ave
Montebello / 19th Ave	3.19	0.00	6.58			4.29				
19th Ave / Camelback 7th Ave / Camelback Central Ave / Camelback	4.82	0.00	12.79			6.74				
Campbell / Central Ave Indian School / Central Ave Osborn / Central Ave Thomas / Central Ave Encanto / Central Ave	4.94	0.00	0.00			8.07				

Once all the weight factors are calculated, each weight factor is applied to all surveys with the same route, direction, time of day, boarding station group, and alighting station group.

7.3 Validating the Expansion for Rail Lines

After all the rail line expansion factors were added into the main survey database, the weighting factors were summed by route, direction, and time period. Those summed weighting factors by route, direction, and time period were then compared to the revised overall ridership numbers for the same route, direction, and time period in order to make sure they were the same.

7.4 Assessment of Valley Metro Expansion Factor Values (Rail Only)

The following assesses each type of Valley Metro rail expansion that was conducted:

NON-CLUSTERED EXPANSION FACTOR ASSESSMENT

With a 7.5% sampling plan, the goal was to keep weight factors less than or equal to 20. Since ETC collected more surveys system-wide than required, the average value of all Valley Metro Rail unlinked expansion factors (non-clustered) in the database is 4.96. Of

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the 9,350 rail records in the database, 8,433 (90.2% of the sample) have an expansion factor below 10 and 9,306 rail records (99.5% of the sample) have a weight factor value less than 20. Only 44 rail records in the database have an expansion factor greater than 20.

CLUSTERED EXPANSION FACTOR ASSESSMENT

With a 7.5% sampling plan, the goal was to keep weight factors less than or equal to 20. The average value of all Valley Metro Rail unlinked expansion factors (clustered) in the database is 4.96. Of the 9,350 rail records in the database, 8,986 (96.1% of the sample) have an expansion factor below 10 and 9,348 rail records (99.9% of the sample) have a weight factor value less than 20. Only 2 rail records in the database have an expansion factor greater than 20.

7.5 Unlinked Trip Weighting Factors for Bus Routes

Stops along each bus route were aggregated into 3 segments (named A, B, and C) based on surrounding land use and the ridership distribution on the route. This was done by direction and for each of the 4 time periods to ensure that reasonable expansion factors could be developed based on the path taken by riders as a function of their boarding and alighting locations. The process for how the bus route data was expanded is explained in this section.

Figure 7-8 shows the segmented results for the on-to-off survey that was administered during the *3 p.m. to 6 p.m.* time period, heading north on Route Zero. Each row in the table identifies the segment where passengers boarded the bus. The columns in the table identify the segments where people alighted the bus. For example, during the *3 p.m. to 6 p.m.* time period heading north on Route Zero, 29 of the on-to-off surveys had riders board on segment B and alight at segment C.

Figure 7-8: Bus Data Expansion Table Results of On-to-Off Survey

TABLE 1: RESULTS OF THE ON-TO-OFF SURVEY				
3pm to 6pm North	ACTUAL RIDERSHIP COUNTS FROM THE ON/OFF SURVEY			
Stop Name	Total	A-1	B-2	C-3
A-1	51	5	36	10
B-2	42		13	29
C-3	54			54
Total	147	5	49	93

Figure 7-9 shows the distribution of the data in Figure 7-8 as a percentage of all boardings for the route. Figure 7-9 was created by dividing each on-to-off cell in Figure 7-8 by the sum of all on-to-off surveys in Figure 7-8, which is 147. For example, during

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the *3 p.m. to 6 p.m.* time period heading north on Route Zero, 29/147 (19.7%) of all trips board on segment B and alight at segment C as shown in Figure 7-9.

Figure 7-9: Bus Data Expansion Table Distribution of On-to-Off Survey

TABLE 2: DISTRIBUTION OF THE ON-TO-OFF SURVEY				
3pm to 6pm North	PERCENTAGE DISTRIBUTION OF RIDERSHIP COUNTS FROM THE ON/OFF SURVEY			
Stop Name	Total	A-1	B-2	C-3
A-1	34.7%	3.4%	24.5%	6.8%
B-2	28.6%	0.0%	8.8%	19.7%
C-3	36.7%	0.0%	0.0%	36.7%
Total	100.0%	3.4%	33.3%	63.3%

The total ridership for the route, time period and direction was applied to the on-to-off distribution shown in Figure 7-9. This produces an estimate of the ridership flow on each route based on the segment-on to the segment-off as shown in Figure 7-10. Applying the actual ridership of 685 to the distribution, one can calculate that 135 trips (19.7% x 685) board on segment B and alight at segment C during the *3 p.m. to 6 p.m.* time period, heading northbound on Route Zero.

Figure 7-10: Bus Data Expansion Table Initial Estimate of Ridership Flows Between Segments

TABLE 3: INITIAL ESTIMATE OF RIDERSHIP FLOWS BETWEEN STATION (percentages in table 2 were applied to the total boardings for this time period in this direction)				
3pm to 6pm North	PROJECTED RIDERSHIP BASED ON THE ON-TO-OFF SURVEY			
STATION	Total	A-1	B-2	C-3
A-1	238	23	168	47
B-2	196	0	61	135
C-3	251	0	0	251
Total	685	23	228	433

The actual number of main surveys that were completed for each boarding-alighting segment pair is shown in Figure 7-11. To calculate the expansion factors, the estimate of ridership between segments shown in Figure 7-10 was divided by the actual number of main surveys that were completed between segments shown in Figure 7-11. This calculation produces the expansion weights shown in Figure 7-12. So, the 135 estimated riders were divided by the 13 completed surveys to produce a weight of 14.25 to be applied to northbound riders on Route Zero who board at segment B and alighting at segment C as shown in Figure 7-11.

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Figure 7-11: Number of Completed Surveys (Bus)

TABLE 7: NUMBER OF COMPLETED SURVEYS				
3pm to 6pm North				
STATION	Total	A-1	B-2	C-3
A-1	14	2	8	4
B-2	17		4	13
C-3	29			29
Total	60	2	12	46

Figure 7-12: Weighting Factors (Bus)

TABLE 9: Final Weight Factors for Expansion				
3pm to 6pm North		Paste Final Expansion Numbers Here		
STATION	Total	A-1	B-2	C-3
A-1	13.19	14.21	15.48	8.13
B-2	16.06		21.96	14.25
C-3	7.82			7.82
Total	11.41	14.21	17.64	9.66

Once all the weight factors are calculated, each weight factor is applied to all surveys with the same route, direction, time of day, boarding segment, and alighting segment.

7.6 Validating the Expansion for Valley Metro Buses

After all the Valley Metro bus expansion factors were added into the main survey database, the weighting factors were summed by route, time period and direction. Those summed weighting factors by route, time period and direction were then compared to the overall ridership numbers for the route, time period and direction in order to make sure they were the same.

7.7 Assessment of Valley Metro Expansion Factor Values (Bus Only)

The average value of all Valley Metro bus unlinked expansion factors in the database is 15.60. Of the 12,453 bus records in the database, 10,312 (82.8% of the sample) have an unlinked expansion factor below 25 and 11,699 bus records (93.9% of the sample) have a weight factor value less than 35.

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7.8 Linked Trip Weighting Factors for All Records

The linked trip weighting factor adjusts the total number of boardings to one-way trips by accounting for the number of transfers that were completed by each passenger.

The equation that was used to calculate the linked trip weighting factor is shown below:

Linked Trip Weighting Factor = [1 / (1 + # of transfers)]

If a passenger did not make a transfer, the linked trip weighting factor would be 1.0 because the person would have only boarded one vehicle. If a person made two transfers, the linked trip weighting factor would be 0.33 because the person would have boarded three transit vehicle during his/her one-way trip. An example of how the linked trip weighting were calculated is provided in Figure 7-13 below.

Figure 7-13: Sample Calculations of Linked Trip Weighting Factors

Number of Transfers	Calculation	Linked Trip Weighting Factor
None	[1/(1+**0**)]	1
One	[1/(1+**1**)]	0.5
Two	[1/(1+**2**)]	0.33
Thee	[1/(1+**3**)]	0.25

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Chapter 8 SELECTED FINDINGS

This section highlights selected demographic and trip-related findings from the survey. The results for all questions on the survey based on the service type of travel (bus only vs. rail only vs. bus/rail vs. Sky Train users) are provided in Appendix C. The results for all questions on the survey based on the type of service (local, express, circulator, etc.) are provided in Appendix D. The results for all questions on the survey based on mode (bus riders vs. rail riders) are provided in Appendix E.

The database used for the tables in this chapter and all chapters were expanded based on weekday linked weight factors created during the data expansion process.

UNLINKED TRIPS VS. LINKED TRIPS

An unlinked passenger trip measures a trip as every time a rider boards and alights a bus/train. A linked passenger trip is the entire trip from origin to destination on the transit system. Even if a rider makes several transfers during a one-way trip, the trip is counted as one linked trip on the system. For example, a rider making a single trip with a transfer in the middle counts as two unlinked trips versus one linked trip. See section 7.8 for Linked Trip weight factor details.

SERVICE TYPE OF TRAVEL

Bus Only: Riders that only used bus routes during their one-way trip.

Rail Only: Riders that only used the rail line during their one-way trip.

Bus/Rail: Riders that used bus routes and the rail line during their one-way trip.

Sky Train Users: Riders that reported using the Sky Train during their one-way trip.

8.1 Demographic Characteristics

This section highlights selected demographic-related findings from the survey.

8.1.1 Vehicle Availability

The Table 8-1 Series shows the number of household vehicles and vehicle availability for Valley Metro riders by service type. Fifty-four percent (54.3%) of all transit passengers indicated that they do not have a vehicle available to their household. Rail passengers were significantly more likely to have at least one vehicle available to their household than bus passengers (54.2% rail only vs. 44.9% bus only). Rail passengers were also more likely to have their vehicle available to use for their one-way trip compared to bus only passengers (66.8% rail only vs. 34.4% bus only) as shown in Table 8-1b.

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Table 8-1a: Number of Vehicles in the Household

Vehicles	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
None (0)	55.1%	61.0%	45.8%	50.3%	54.3%
One (1)	24.7%	24.7%	31.9%	24.3%	25.8%
Two (2)	14.5%	9.9%	15.6%	13.3%	14.2%
Three (3)	3.9%	2.7%	4.6%	11.0%	3.9%
Four or more (4+)	1.8%	1.7%	2.2%	1.1%	1.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 8-1b: Vehicle Availability

Vehicles Availability	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
No	65.6%	61.1%	33.2%	55.5%	59.6%
Yes	34.4%	38.9%	66.8%	44.5%	40.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Riders that indicated they have at least one working vehicle in the household.

8.1.2 Household Size

Table 8-2 shows the number of household members. Thirty-Three percent (33.1%) of all transit passengers indicated that they live in households with at least four occupants; 23.1% reported that they live alone. Bus passengers were significantly more likely to live in households with four or more occupants than rail passengers (35.2% bus only vs. 24.6% rail only).

Table 8-2: Number of People Living in the Household

Persons	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
One (1)	21.7%	26.8%	28.3%	26.6%	23.1%
Two (2)	23.9%	30.8%	24.2%	30.6%	24.9%
Three (3)	19.3%	17.8%	17.2%	11.6%	18.8%
Four (4)	16.3%	13.2%	13.7%	12.8%	15.6%
Five (5)	9.2%	5.9%	8.3%	12.9%	8.7%
Six (6)	5.0%	2.9%	3.9%	3.3%	4.6%
Seven (7)	2.1%	1.2%	1.9%	1.2%	1.9%
Eight (8)	0.9%	0.6%	1.0%	0.6%	0.9%
Nine (9)	0.4%	0.1%	0.4%	0.0%	0.4%
Ten or More (10+)	1.1%	0.6%	1.0%	0.4%	1.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.3 Employed Persons per Household

Table 8-3 shows the number of employed household members by service type. Most (87.5%) transit passengers reported that they live in households where at least one person is employed. There were no significant differences in the number of employed persons per household based on the mode of travel as shown in Table 8-3 below.

Table 8-3: Number of Employed Persons in the Household

Employed Persons	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
None (0)	11.7%	15.2%	14.5%	7.9%	12.5%
One (1)	36.5%	34.7%	39.7%	34.0%	36.6%
Two (2)	33.5%	33.8%	30.3%	36.6%	33.2%
Three (3)	12.3%	11.2%	9.9%	16.2%	11.9%
Four (4)	4.0%	4.0%	3.7%	3.7%	4.0%
Five (5)	1.0%	0.7%	1.0%	0.6%	1.0%
Six (6)	0.4%	0.2%	0.3%	0.6%	0.4%
Seven (7)	0.1%	0.1%	0.1%	0.0%	0.1%
Eight (8)	0.1%	0.1%	0.1%	0.0%	0.1%
Nine (9)	0.0%	0.0%	0.0%	0.0%	0.0%
Ten or More (10+)	0.4%	0.0%	0.3%	0.4%	0.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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8.1.4 Employment Status

Table 8-4 shows the employment status of riders by service type. Eighty-percent (80.0%) of all transit passengers indicated that they were employed or seeking work. Rail passengers were slightly more likely to be employed at least part-time than bus only passengers (71.0% bus only vs. 68.5% bus only).

Table 8-4: Employment Status

Employment Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Employed full-time (at least 35 hrs per week)	53.7%	52.5%	56.4%	79.4%	53.9%
Employed part-time (less than 35 hrs per week)	14.7%	18.5%	13.3%	9.8%	15.1%
Not currently employed but seeking work	11.1%	10.1%	12.0%	1.3%	11.0%
Not currently employed and not seeking work	15.2%	12.9%	13.2%	4.8%	14.7%
Homemaker	0.6%	0.4%	0.4%	0.2%	0.6%
Retired	4.6%	5.7%	4.7%	4.6%	4.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.5 Student Status

Table 8-5 shows the student status of riders by service type. Twenty-seven percent (27.2%) of all transit passengers indicated that they were students. Rail passengers were more likely to be enrolled in a college or university than bus passengers (30.4% rail only vs. 13.2% bus only). Bus passengers were twice more likely to be students in grades K-12 than rail passengers (11.9% bus only vs. 5.1% rail only).

Table 8-5: Student Status

Student Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Not a student	73.8%	63.8%	77.5%	90.0%	72.8%
Yes - Full Time college/university	11.2%	28.0%	12.2%	7.3%	13.8%
Yes - Part Time college/university	2.0%	2.7%	1.8%	0.7%	2.1%
Yes - vocational/technical/trade school	0.9%	0.4%	0.9%	0.0%	0.8%
Yes - K-12th grade	11.9%	5.2%	7.7%	2.1%	10.5%
Other	0.2%	0.0%	0.1%	0.0%	0.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.6 Driver's License

Table 8-6 displays whether riders have a valid driver's license by service type. More than half (53.8%) of all transit passengers indicated that they do not have a driver's license. Rail passengers were significantly more likely to have a driver's license than bus passengers (66.5% rail only vs. 42.0% bus only) as shown in Table 8-6 below.

Table 8-6: Driver's License Status

Driver's License Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
No	58.0%	33.5%	53.3%	26.6%	53.8%
Yes	42.0%	66.5%	46.7%	73.4%	46.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.7 Age

Table 8-7 shows the age of transit rider by service type. Sixty-percent (60.3%) of all transit riders indicated that they were between the ages of 19 and 44; 13.5% were 18 and younger, and 26.2% were age 45 or older. Bus passengers were more likely to be 18 and younger than rail passengers (15.0% bus only vs. 8.3% rail only). Bus

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passengers were also slightly more likely to be age 45 or older (26.1% bus only vs. 23.9% rail only). Rail users were more likely to be between the ages of 19-34 than bus passengers (53.7% rail only vs. 44.2% bus only).

Table 8-7: Ages of Transit Users

Age of Respondent	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Under 16	2.6%	1.5%	1.9%	0.0%	2.4%
16-18	12.3%	6.9%	8.4%	2.2%	11.1%
19-24	22.2%	30.3%	20.3%	19.3%	23.2%
25-34	22.0%	23.4%	23.0%	28.4%	22.4%
35-44	14.7%	14.1%	16.6%	17.9%	14.8%
45-54	13.4%	12.2%	16.3%	16.2%	13.5%
55-64	9.2%	8.0%	9.9%	10.4%	9.1%
65+	3.5%	3.8%	3.6%	5.6%	3.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.8 Income

Total household income by service type is shown in Table 8-8 series below. Excluding refusals, nearly twenty-eight percent (27.7%) of all transit passengers reported annual household incomes below $15,000. Seventeen percent (17.0%) indicated they had an annual household income of $50,000 or more, and only 3.5% reported an annual household income of $100,000 or more.

Table 8-8a: Annual Household Income

Annual Household Income	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Below $5,000	9.3%	9.2%	10.4%	4.1%	9.4%
$5,000-$9,999	3.7%	4.1%	4.3%	3.7%	3.8%
$10,000-$14,999	6.2%	5.9%	7.3%	5.7%	6.2%
$15,000-$19,999	8.0%	5.9%	6.4%	5.7%	7.6%
$20,000-$24,999	8.3%	6.3%	7.6%	6.9%	7.9%
$25,000-$29,999	8.0%	4.8%	8.7%	5.3%	7.6%
$30,000-$34,999	6.1%	6.1%	6.3%	6.3%	6.1%
$35,000-$39,999	4.6%	4.9%	4.7%	3.5%	4.7%
$40,000-$49,999	4.8%	5.2%	5.1%	5.5%	4.9%
$50,000-$59,999	3.2%	4.9%	3.6%	7.4%	3.5%
$60,000-$69,999	2.2%	3.1%	1.9%	6.3%	2.4%
$70,000-$79,999	1.5%	2.5%	2.1%	4.0%	1.7%
$80,000-$89,999	1.1%	2.0%	1.0%	1.6%	1.2%
$90,000-$99,999	0.5%	1.7%	0.6%	2.0%	0.7%
$100,000-$119,999	1.0%	2.5%	0.9%	1.4%	1.2%
$120,000 or more	1.0%	2.4%	1.1%	5.0%	1.2%
Refusal	30.5%	28.3%	28.0%	25.5%	29.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 8-9b: Annual Household Income (Excluding Refusals)

Annual Household Income	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Below $5,000	13.3%	14.4%	12.9%	5.6%	13.3%
$5,000-$9,999	5.3%	6.0%	5.7%	5.0%	5.4%
$10,000-$14,999	8.9%	10.1%	8.2%	7.7%	8.9%
$15,000-$19,999	11.6%	8.9%	8.3%	7.6%	10.8%
$20,000-$24,999	11.9%	10.6%	8.8%	9.3%	11.3%
$25,000-$29,999	11.5%	12.0%	6.7%	7.1%	10.8%
$30,000-$34,999	8.7%	8.7%	8.5%	8.5%	8.7%
$35,000-$39,999	6.7%	6.6%	6.8%	4.6%	6.7%
$40,000-$49,999	6.9%	7.1%	7.3%	7.4%	7.0%
$50,000-$59,999	4.6%	5.1%	6.8%	10.0%	5.0%
$60,000-$69,999	3.2%	2.7%	4.4%	8.5%	3.4%
$70,000-$79,999	2.1%	2.9%	3.6%	5.3%	2.4%
$80,000-$89,999	1.6%	1.4%	2.8%	2.2%	1.8%
$90,000-$99,999	0.7%	0.9%	2.3%	2.6%	1.0%
$100,000-$119,999	1.4%	1.2%	3.6%	1.8%	1.7%
$120,000 or more	1.4%	1.5%	3.4%	6.7%	1.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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8.1.9 Gender

The gender of riders by service type is presented in Table 8-10. Fifty-five percent (55.2%) of all transit passengers were male; 44.8% were female. There were no significant differences with regard to gender based on the mode of travel as shown in Table 8-10 below.

Table 8-10: Gender

Gender	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Female	45.2%	44.5%	42.3%	37.0%	44.8%
Male	54.8%	55.5%	57.7%	63.0%	55.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.10 Race/Ethnicity

Table 8-11 shows the race/ethnicity of riders by service type. Forty-three percent (43.2%) of transit riders identified themselves as White; 27.3% identified themselves as Hispanic or Latino, and 18.9% identified themselves as Black or African American. Bus passengers were more likely to be Hispanic than rail passengers (29.1% bus only vs. 20.2% rail only).

Table 8-11: Race/Ethnicity

Race/Ethnicity	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
American Indian / Alaska Native	4.2%	4.4%	7.7%	2.1%	4.6%
Asian	3.0%	5.7%	2.3%	2.5%	3.3%
Black / African American	19.7%	13.2%	21.3%	24.9%	18.9%
Hispanic / Latino	29.1%	20.2%	24.3%	13.4%	27.3%
Native Hawaiian / Pacific Islander	0.8%	0.7%	0.7%	0.7%	0.8%
White	41.7%	51.9%	41.4%	55.0%	43.2%
Other	1.6%	3.8%	2.2%	1.5%	2.0%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.11 How Transit Riders Typically Get Transit Schedule Information

Table 8-12 shows the preferred tools for transit schedules by service type. The most common ways that all transit riders indicated that they get transit schedule information were: the Valley Metro website (27.5%), the transit book (21.5%) and mobile site (20.6%). Bus passengers were significantly more likely to use the transit schedule book than rail passengers (23.1% bus only vs. 13.0% rail only). Rail passengers were significantly more likely to used posted schedules (22.1% rail only vs. 9.9% bus only).

Table 8-12: How Transit Riders Get Transit Schedule Information

Source of Information	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Customer service	7.9%	4.4%	6.8%	2.4%	7.3%
Mobile site	20.2%	20.1%	23.7%	29.3%	20.6%
NextRide	9.0%	8.0%	8.5%	9.6%	8.8%
Posted schedule at bus stop	9.9%	22.1%	10.9%	19.8%	11.8%
Transit Book	23.1%	13.0%	21.8%	8.0%	21.5%
Valley Metro website	27.6%	28.5%	25.4%	28.5%	27.5%
Other	2.2%	3.8%	3.0%	2.4%	2.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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8.1.12 Veterans Status

Table 8-13 shows the veterans' status by service type. Six percent (6.0%) of all transit passengers indicated that they are a veteran. There is no significant different between rail passengers and bus passengers.

Table 8-13: Veterans Status

Veteran Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
YES	5.6%	6.8%	8.0%	5.0%	6.0%
NO	93.7%	92.6%	91.8%	94.4%	93.4%
No answer	0.7%	0.6%	0.2%	0.6%	0.6%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.1.13 Visitor Status

Table 8-14 shows the visitor's status by service type. Ninety-eight percent (98.6%) of all transit passengers indicated that they are local residents. Visitors were significantly more likely to use rail than bus (5.1% rail only vs. 0.6% bus only).

Table 8-14: Visitor Status

Visitor Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
No	99.4%	94.9%	98.6%	83.5%	98.6%
Yes	0.6%	5.1%	1.4%	16.5%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.2 Travel Characteristics

This section highlights selected trip-related findings from the survey. The database used for the tables in this section and all chapters was expanded based on weekday linked weight factors created during the data expansion process.

8.2.1 Trip Purpose

Table 8-15 displays the trip purpose of riders by agency service types. Home-based work trips accounted for nearly forty-percent (38.8%) of all trips completed on public transit. Nearly twenty percent (19.2%) of all trips were home-based other trips, 12.4% were non-home based trips, and 9.5% were home based-shopping trips.

Rail passengers were significantly more likely to complete home-based college trips than bus passengers (17.4% rail only vs. 7.6% bus only). Bus passengers were significantly more likely to use public transit to complete home-based work trips (40.8% bus only vs. 26.9% rail only).

Table 8-15: Trip Purpose

Trip Purpose	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Home-Based Airport Trip	0.0%	0.4%	0.3%	34.1%	0.2%
Home-Based College Trip	7.6%	17.4%	6.6%	0.0%	8.9%
Home-Based Medical Trip	3.0%	1.4%	3.4%	0.0%	2.8%
Home-Based Other Trip	18.7%	18.5%	23.5%	5.7%	19.2%
Home-Based School Trip	9.6%	2.5%	6.0%	0.0%	8.2%
Home-Based Shopping Trip	9.7%	10.9%	6.7%	0.1%	9.5%
Home-Based Work Trip	40.8%	26.9%	40.4%	40.6%	38.8%
Non-Home Based Trip	10.5%	21.9%	13.1%	19.6%	12.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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8.2.2 How Passengers Access Public Transit

How passengers first access public transit for their one-way trip by service type is shown in Table 8-16 series. Most (87.2%) transit passengers indicated that they accessed public transit by walking all the way. Bus passengers were significantly more likely to report walking to public transit than rail passengers (89.2% bus only vs. 74.7% rail only). Rail passengers were more likely than bus passengers to access public transit by driving alone and parking (7.5% rail only vs. 2.3% bus only). Rail passengers were also significantly more likely to access public transit by being dropped off by someone else (5.4% rail only vs. 3.1% bus only).

Table 8-16a: Access Mode to Transit System

Access Mode	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Walked all the way	89.2%	74.7%	90.3%	91.7%	87.2%
Walked part of the way (got dropped off and then walked)	0.4%	0.3%	0.4%	0.2%	0.4%
Bike	3.6%	9.5%	4.6%	0.2%	4.6%
Drove alone and parked	2.3%	7.5%	1.2%	3.2%	2.9%
Drove or rode with others and parked	0.1%	1.4%	0.1%	1.0%	0.3%
Was dropped off by someone	3.1%	5.4%	2.2%	3.7%	3.4%
Wheelchair/scooter	0.9%	0.6%	0.9%	0.0%	0.9%
Other	0.4%	0.5%	0.3%	0.0%	0.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Riders who indicated that they had walked all the way to the transit system were asked how far they had to walk. Eighty-three percent (83.0%) of those who walked indicated that they walked up to two blocks to get to transit. Thirteen percent (13.3%) reported that they walked between three to five blocks. Only 3.7% indicated that they would walk six or more blocks. Rail passengers were significantly more likely to report walking between three to five blocks to access transit compared to bus passengers (16.4% rail only vs. 12.9% bus only).

Table 8-15b: Access Mode to Transit System (Walk Distance)

Walk Distance	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Less than a block	49.6%	39.7%	47.2%	48.1%	48.1%
One (1)	20.9%	21.9%	21.7%	27.7%	21.1%
Two (2)	13.1%	17.5%	13.8%	13.2%	13.7%
Three (3)	6.4%	8.5%	7.4%	5.1%	6.7%
Four (4)	4.3%	5.5%	3.8%	2.3%	4.3%
Five (5)	2.3%	2.4%	1.6%	0.2%	2.2%
Six (6)	0.8%	1.1%	1.4%	1.6%	0.9%
Seven (7)	0.4%	1.2%	0.5%	0.1%	0.5%
Eight (8)	0.9%	0.9%	0.9%	0.5%	0.9%
Nine (9)	0.1%	0.4%	0.2%	0.4%	0.2%
Ten or more (10+)	1.2%	1.0%	1.5%	0.8%	1.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Based on riders who indicated that they had walked all the way.

8.2.3 How Passengers Traveled From Transit to Their Final Destination

Table 8-17 series shows how passengers traveled from public transit to their final destination. The majority of transit passengers (88.8%) indicated that they walk all the way to their final destination after using public transit. Bus passengers were more likely to walk than rail passengers (91.0% bus only vs. 76.3% rail only). Rail passengers were more likely than bus passengers to drive alone to their destination (7.7% rail only

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vs. 2.1% bus only). Rail passengers were more likely to be picked up by someone else (3.6% rail only vs. 1.6% bus only).

Table 8-17a: Egress Mode to Destination

Egress Mode	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Walk all the way	91.0%	76.3%	90.4%	91.5%	88.8%
Walk part of the way (will walk then get picked up)	0.3%	0.6%	0.5%	1.3%	0.3%
Bike	3.7%	10.0%	4.7%	0.2%	4.7%
Get in a parked vehicle & drive alone	2.1%	7.7%	1.2%	1.2%	2.8%
Get in a parked vehicle & drive/ride with others	0.1%	0.7%	0.1%	0.7%	0.2%
Be picked up by someone	1.6%	3.6%	1.8%	5.2%	1.9%
Wheelchair/scooter	1.0%	0.6%	1.0%	0.0%	0.9%
Other	0.4%	0.5%	0.3%	0.0%	0.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Riders who indicated that they would walk all the way to their destination were asked how far they would walk. Over eighty percent (82.7%) of those who would walk to their destination indicated that they would walk up to two blocks. Nearly fourteen percent (13.7%) reported that they would walk between three to five blocks. Only 3.7% indicated that they would walk six or more blocks. Rail passengers were significantly more likely to report walking between three to five blocks to destination compared to bus passengers (19.7% rail only vs. 12.5% bus only).

Table 8-18b: Egress Mode to Destination (Walk Distance)

Walk Distance	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Less than a block	48.9%	37.7%	43.1%	58.0%	46.9%
One (1)	21.0%	21.6%	22.1%	19.8%	21.2%
Two (2)	14.2%	16.0%	15.6%	8.8%	14.6%
Three (3)	6.7%	11.2%	7.7%	6.8%	7.4%
Four (4)	4.0%	5.6%	5.0%	0.5%	4.3%
Five (5)	1.9%	3.0%	2.1%	2.0%	2.0%
Six (6)	1.0%	1.4%	0.9%	3.0%	1.0%
Seven (7)	0.6%	1.0%	0.9%	0.4%	0.6%
Eight (8)	0.8%	1.1%	1.1%	0.3%	0.8%
Nine (9)	0.2%	0.3%	0.3%	0.0%	0.2%
Ten or more (10+)	0.8%	1.3%	1.2%	0.4%	0.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Based on riders who indicated that they had walked all the way.

8.2.4 Transfers

Table 8-19 shows the number of transfers used by service type. More than thirty percent (34.1%) of public transit users made at least one transfer during their trip. Nearly six percent (5.8%) made two or more transfers. Passengers who used both bus and rail were more likely to make two or more transfers during their trip compared to bus-only users (26.1% bus/rail vs. 4.0% bus only).

Table 8-19: Total Transfers

Number of Transfers	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
None	68.7%	100.0%	0.0%	0.0%	65.9%
One	27.3%	0.0%	73.9%	67.9%	28.3%
Two	3.7%	0.0%	22.6%	26.6%	5.2%
Three or More	0.3%	0.0%	3.5%	5.6%	0.6%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.2.5 Type of Pass

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The Table 8-20 illustrates the pass type by service type. More than thirty percent (32.7%) of public transit users used an all-day pass for their current one-way trip. Fifteen percent (15.5%) used a 31-day pass for their current one-way trip. Rail passengers were more likely to use an Arizona State University U-Pass for their trip compared to bus only users (17.8% rail only vs. 1.5% bus only).

Table 8-20: Pass Type

Pass Type	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
All-Day pass	31.7%	35.5%	35.6%	49.6%	32.7%
7-Day Pass	5.4%	4.2%	5.6%	3.3%	5.3%
15-Day	3.7%	2.1%	4.8%	0.7%	3.6%
31-Day Pass	15.6%	11.8%	20.5%	15.9%	15.5%
Semester Pass	2.4%	1.9%	2.3%	0.0%	2.3%
Full Fare	11.0%	8.1%	5.2%	17.2%	10.0%
Employer Subsidized Pass (Platinum Pass)	8.7%	10.6%	9.2%	8.6%	9.0%
FREE	10.5%	1.4%	3.4%	0.3%	8.4%
ASU U-Pass	1.5%	17.8%	4.4%	1.5%	4.2%
Courtesy Pass	0.1%	0.4%	0.1%	0.0%	0.1%
Dial A Ride ID Card	0.0%	0.0%	0.0%	0.0%	0.0%
Field Trip Pass	0.0%	0.1%	0.1%	0.2%	0.0%
Person with Disability Fare	0.9%	0.6%	1.2%	0.1%	0.9%
Reduced Fare Card ID	5.8%	4.1%	6.3%	2.0%	5.6%
Youth Fare	1.8%	0.6%	1.0%	0.0%	1.6%
Senior Fare	0.9%	0.7%	0.5%	0.5%	0.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

8.2.6 Trip Distance by Trip Purpose

Table 8-21 shows the trip distances by trip purpose. The mean trip distance (in miles) was calculated in GIS using the straight line distance between the trip origin and destination. Nearly half (48.1%) of all transit trips were less than five miles. One third (32.1%) of all trips were between five and ten miles.

The types of trips with the longest trip distance were: home-based work trips (8.90) and home-based airport trips (8.52). Home-based shopping trips (5.44) and home-based school trips (5.38) had the shortest trip distances.

Table 8-21: Trip Distance by Purpose

Trip Distance	HBA	HBC	HBM	HBO	HBS	HBW	HSL	NHB	GRAND TOTAL
<.5 Mile	0.0%	0.2%	1.0%	0.1%	0.8%	0.1%	0.0%	1.3%	0.4%
0.50-0.99	0.0%	2.4%	2.4%	4.7%	7.9%	0.9%	1.6%	4.2%	2.9%
1.00-4.99	28.0%	48.8%	47.5%	44.9%	64.0%	33.8%	59.8%	51.5%	44.8%
5.00-9.99	34.9%	30.0%	33.3%	31.7%	20.1%	37.0%	28.9%	29.9%	32.1%
10.00-15.99	31.6%	14.0%	12.0%	13.1%	5.8%	19.5%	8.2%	10.5%	14.3%
16.00-19.99	4.1%	2.5%	2.5%	3.1%	0.6%	4.5%	0.8%	1.7%	3.0%
20.00-24.99	1.2%	1.2%	0.9%	1.4%	0.6%	2.8%	0.3%	0.6%	1.7%
>24.99 Miles	0.2%	0.9%	0.4%	1.0%	0.4%	1.2%	0.3%	0.3%	0.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mean Trip Distance (Miles)	8.52	7.93	7.50	8.22	5.44	8.90	5.38	6.69	7.83

Notes: HBW=Home-Based Work Trip; HBS=Home-Based Shopping Trip; HBC=Home-Based College Trip; HSL=Home-Based School Trip; HBM=Home-Based Medical Trip; HBA=Home-Based Airport Trip; HBO=Home-Based Other Trip; NHB= Non-Home Based Trip.

8.2.7 Trip Distance by Travel Mode

The types of travel with the longest trip distance were: Bus/Rail passengers (10.16 miles), Rail only passengers (7.22 miles). Bus only passenger (6.94 miles) had the shortest average trip distance.

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Table 8-22 shows the trip distances by travel mode. The mean trip distance (in miles) was calculated in GIS using the straight line distance between the trip origin and destination. The types of travel with the longest trip distance were: Bus/Rail passengers (10.16 miles), Rail only passengers (7.22 miles). Bus only passenger (6.94 miles) had the shortest average trip distance.

Table 8-22: Trip Distance by Travel Mode

Trip Distance	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
<.5 Mile	0.2%	0.0%	1.1%	0.0%	0.4%
0.50-0.99	2.8%	0.3%	5.7%	0.2%	2.9%
1.00-4.99	45.9%	28.2%	51.5%	36.7%	44.8%
5.00-9.99	32.9%	37.4%	24.2%	34.5%	32.1%
10.00-15.99	13.6%	22.5%	11.8%	24.4%	14.3%
16.00-19.99	2.6%	6.4%	2.4%	2.9%	3.0%
20.00-24.99	1.3%	3.7%	1.9%	0.4%	1.7%
>24.99 Miles	0.7%	1.4%	1.3%	0.9%	0.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%
Mean Trip Distance (Miles)	6.93	7.22	10.18	7.86	7.83

8.2.8 Where Transit Users Live

Table 8-23 (below) shows the top 10 zip codes where the greatest number of surveyed transit users live. Zip codes 85281, 85015 and 85008 were home to the greatest number of transit users in the region. Eight percent (7.4%) of all transit users in the region live in zip code 85281, 4.6% of all transit users in the region live in zip code 85015 and 3.3% live in zip code 85008.

The map in Table 8-23**Error! Reference source not found.** shows where transit users in the region live. The home addresses are plotted as black dots on the map.

The map in Notes: *The dots on this map show the HOME address of respondents to the survey.*

Figure 8-2 shows the density of home address by zip code. Zip codes that are home to the most transit users are shaded in dark blue.

Table 8-23: Where Transit Users Live

Home Zip Code	Overall
85281	7.4%
85015	4.6%
85008	3.3%
85282	3.1%
85041	3.0%
85013	2.9%
85007	2.4%
85301	2.4%
85017	2.4%
85201	2.3%

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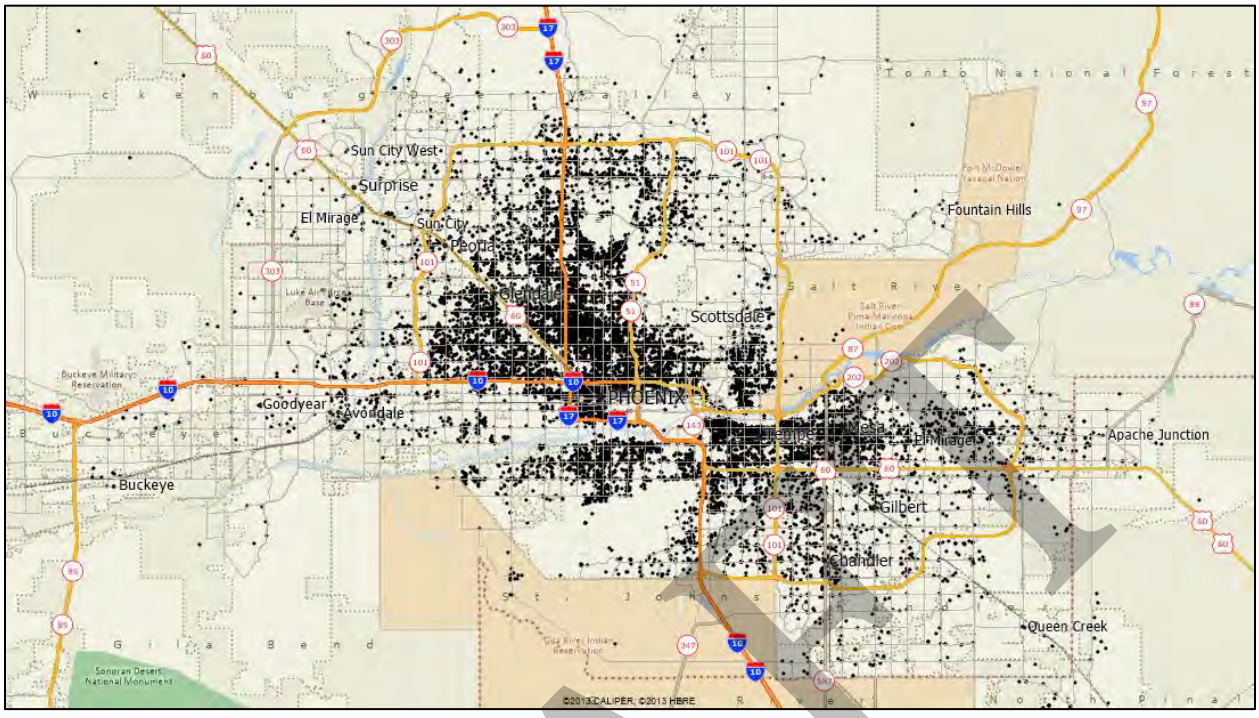
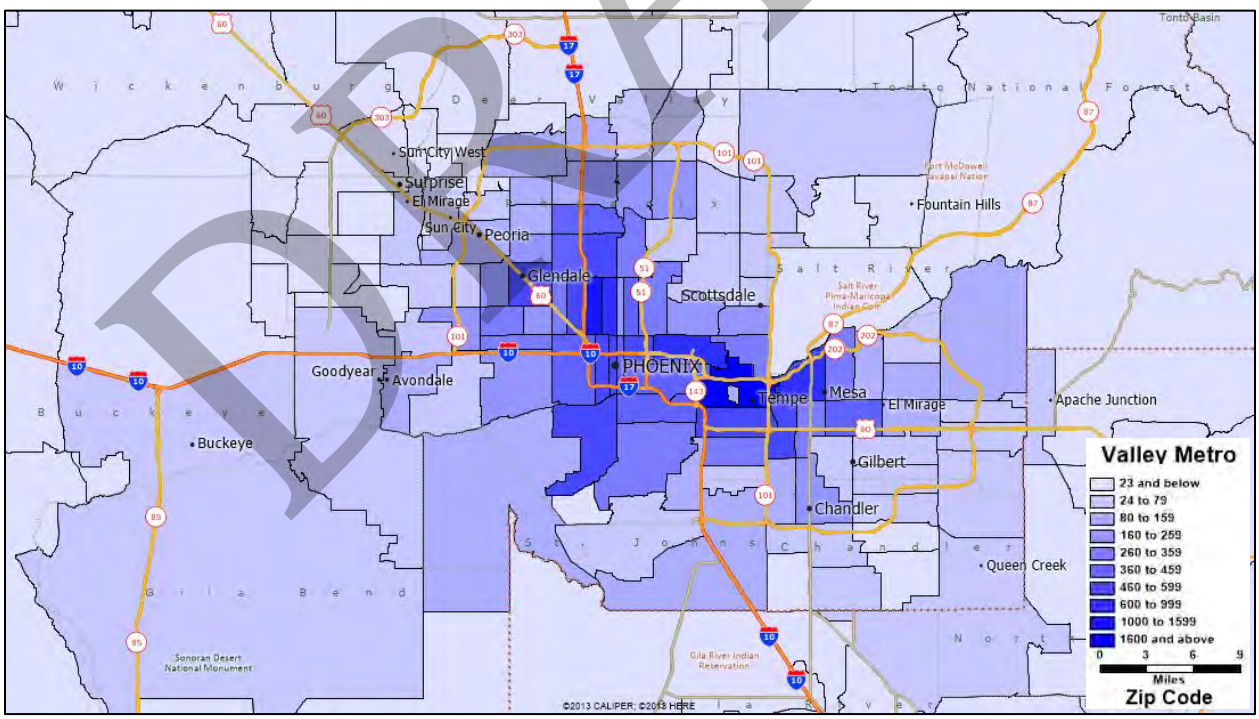
Figure 8-1: Where Transit Users Live (Respondent Map)



Notes: The dots on this map show the HOME address of respondents to the survey.

Figure 8-2: Where Transit Users Live (Zip Code Density Map)



Notes: The shading on this map shows the number of respondents to the survey by HOME zip code.

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8.2.9 Where Transit Trips Began

Table 8-24 (below) shows the top 10 zip codes where the greatest number of transit trips began. Zip code 85281 had the most trip origins for transit in the region. Six percent (6.4%) of all transit trips in the region began in zip code 85281. Some of the other prominent zip codes were transit trips began were: 85015 (4.7%), 85004 (4.5%), 85003 (3.6%) and 85287 (3.5%).

The map in Figure 8-3 shows where all transit trips in the region began. The origin addresses are plotted as black dots on the map.

The map in Figure 8-4 shows the density of trip origins by zip code. Zip codes with the most trip origins are shaded in dark blue.

Table 8-24: Where Transit Trips Began

Origin Zip Code	Overall
85281	6.4%
85015	4.7%
85004	4.5%
85003	3.6%
85287	3.5%
85013	3.1%
85282	2.9%
85008	2.5%
85009	2.4%
85034	2.2%

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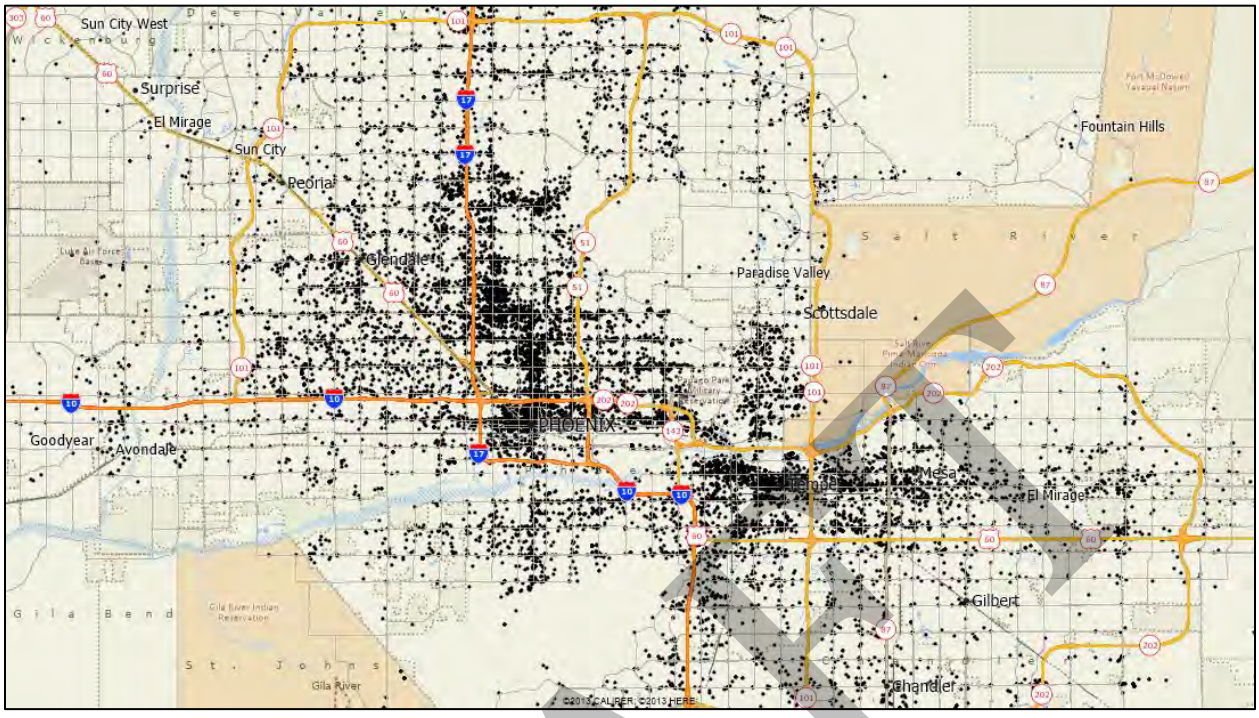
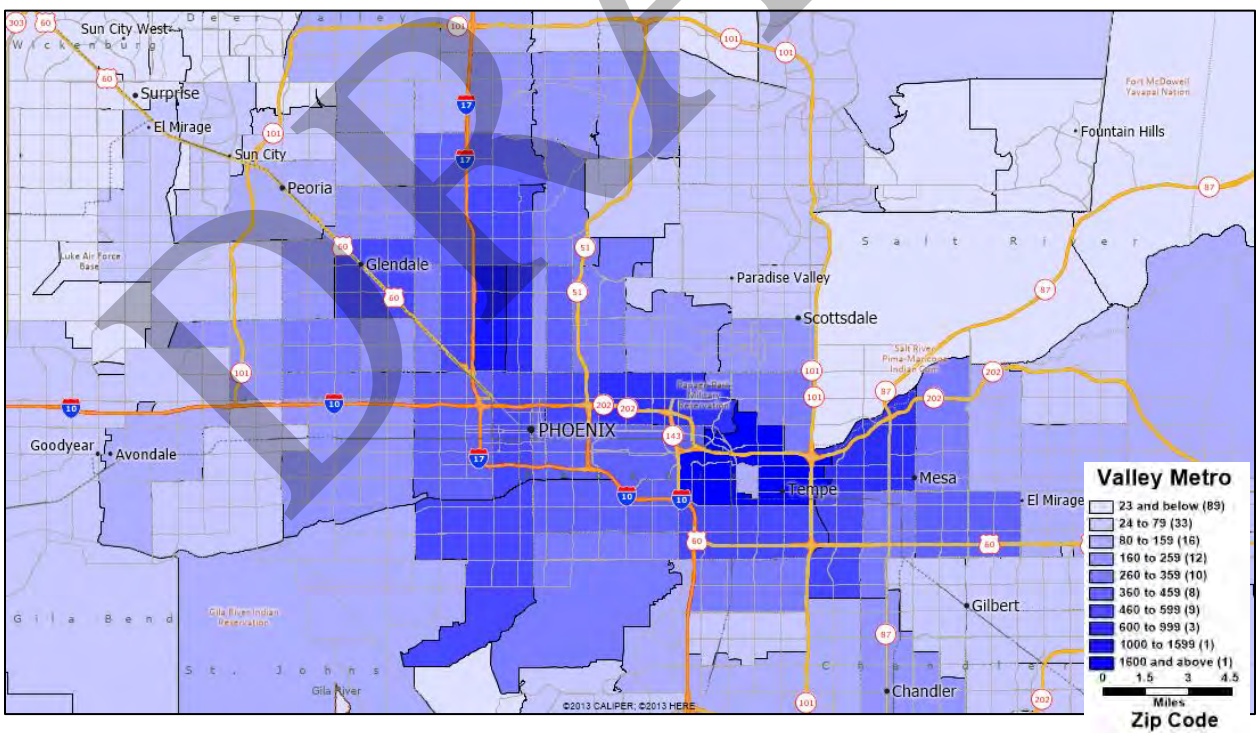
Figure 8-3 Where Transit Trips Begin (Respondent Map)



Notes: The dots on this map show the ORIGIN address of respondents to the survey.

Figure 8-4 Where Transit Trip Begin (Zip Code Density Map)



Notes: The shading on this map shows the number of respondents to the survey by ORIGIN zip code.

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8.2.10 Where Transit Trips Ended

Table 8-25 (below) shows the top 10 zip codes where the greatest number of transit trips ended. Zip codes 85281, 85004 and 85015 had the most trip destinations for transit in the region. Six percent (6.5%) of all transit trips in the region ended in zip code 85281. Four percent (4.4%) of all transit trips in the region ended in zip code 85004 and 5% ended in zip code 85287.

The map in Figure 8-5 shows where all transit trips in the region ended. The destination addresses are plotted as black dots on the map.

The map in Figure 8-6 shows the density of trip destinations by zip code. Zip codes with the most trip destinations are shaded in dark blue.

Table 8-25: Where Transit Trips Ended

Destination Zip Code	Overall
85281	6.5%
85004	4.4%
85015	4.2%
85287	3.9%
85003	3.6%
85013	3.1%
85282	2.7%
85008	2.6%
85034	2.3%
85007	2.3%

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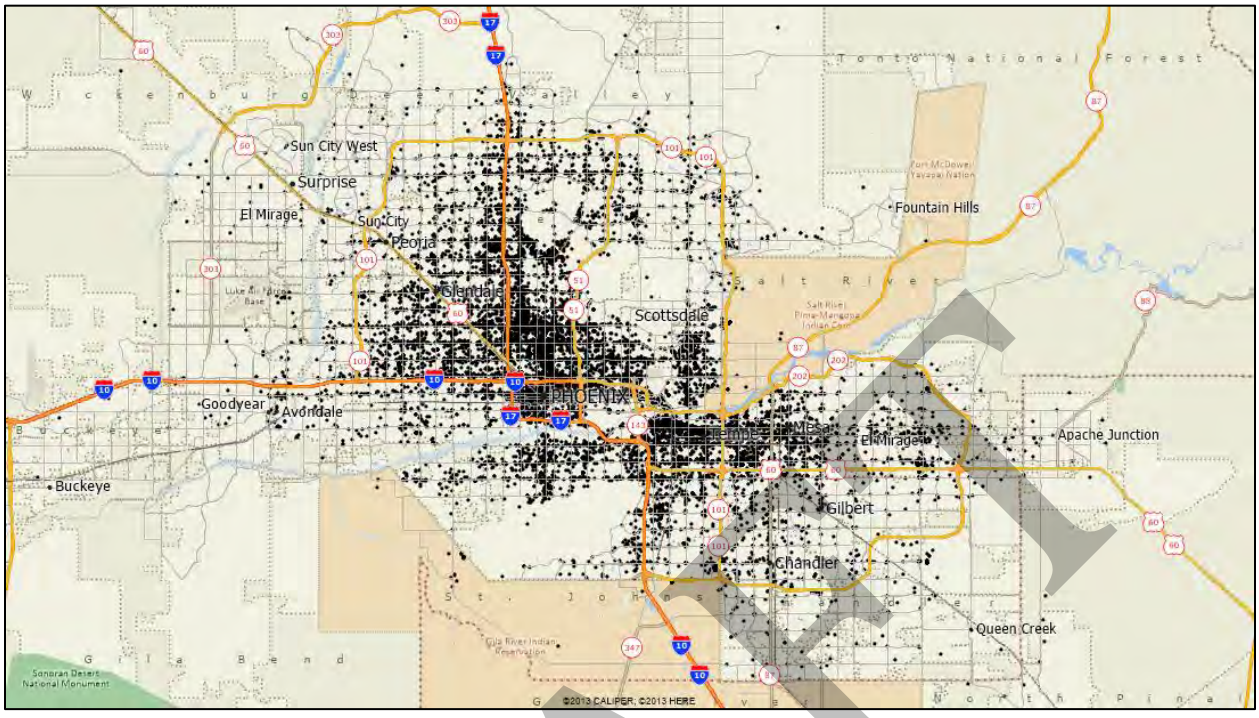
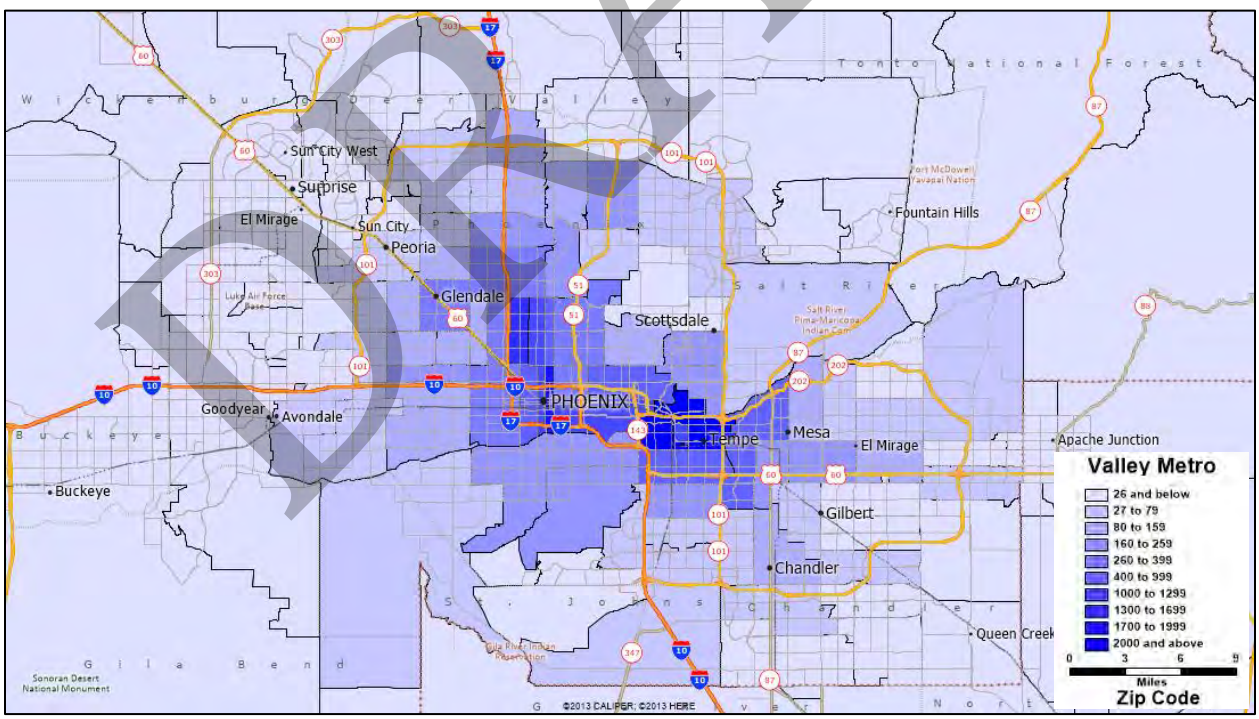
Figure 8-5 Where Transit Trips Ended (Respondent Map)



Notes: The dots on this map show the DESTINATION address of respondents to the survey.

Figure 8-6 Where Transit Trip Ended (Zip Code Density Map)



Notes: The shading on this map shows the number of respondents to the survey by DESTINATION zip code.

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8.2.11 Where Transit Riders Boarded

Table 8-26 (below) shows the top 10 zip codes where the greatest number of transit boardings occurred. Zip codes 85003, 85281, and 85015 had the most transit boardings in the region. Seven percent (7.1%) of all transit boardings in the region occurred in zip code 85003. Seven percent (6.8%) of all transit boardings in the region occurred in zip code 85281 and six percent (5.6%) of all transit boardings occurred in zip code 85015.

The map in Figure 8-7 shows where all transit boardings in the region occurred. The boarding locations are plotted as black dots on the map.

The map in Figure 8-8 shows the density of trip boardings by zip code. Zip codes with the most boardings are shaded in dark blue.

Table 8-26: Where Transit Riders Boarded

Boarding Zip Code	Overall
85003	7.1%
85281	6.8%
85015	5.6%
85287	5.2%
85013	4.2%
85282	2.9%
85004	2.7%
85202	2.6%
85051	2.5%
85034	2.4%

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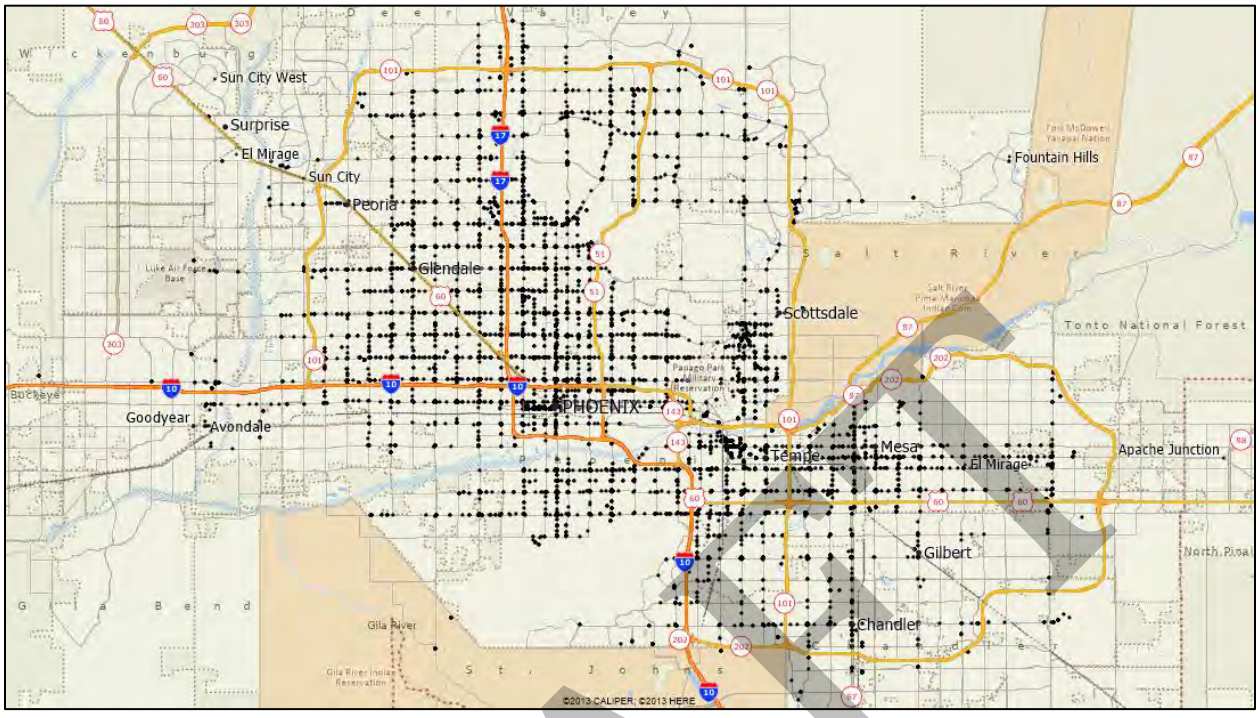
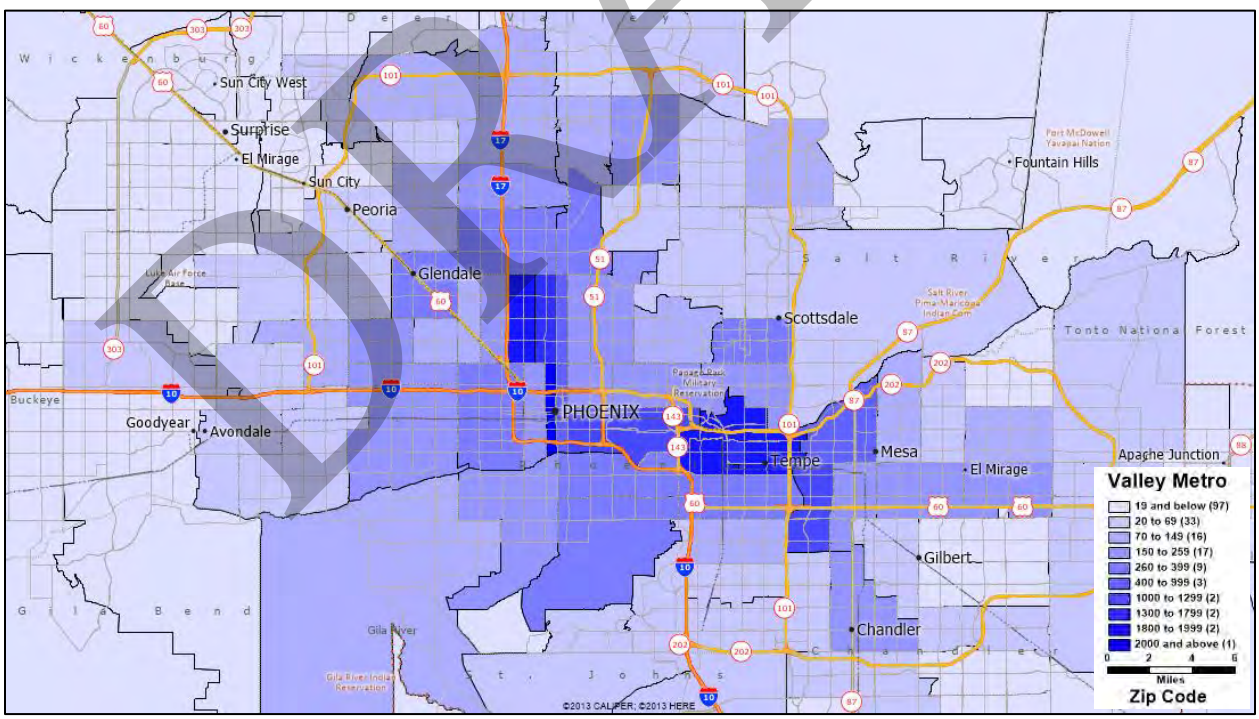
Figure 8-7 Where Transit Users Boarded Transit (Respondent Map)



Notes: The dots on this map show the BOARDING address of respondents to the survey.

Figure 8-8 Where Transit Users Boarded Transit (Zip Code Density Map)



Notes: The shading on this map shows the number of respondents to the survey by BOARDING zip code.

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8.2.12 Where Transit Riders Alighted

Table 8-27 (below) shows the top 10 zip codes where the greatest number of transit alightings occurred. Zip codes 85281, 85003, and 85287 had the most alightings in the region. Seven percent (6.6%) of all transit alightings in the region occurred in zip code 85281. Six percent (6.0%) of all transit alightings in the region occurred in zip code 85003 and five percent (5.2%) of all transit alightings occurred in zip code 85287.

The map in Figure 8-9 shows where all transit alightings in the region occurred. The alighting locations are plotted as black dots on the map.

The map in Figure 8-10 shows the density of trip alightings by zip code. Zip codes with the most alighting are shaded in dark blue.

Table 8-27: Where Transit Riders Alighted

Alighting Zip Code	Overall
85281	6.6%
85003	6.0%
85287	5.2%
85015	5.0%
85013	4.2%
85004	2.9%
85202	2.7%
85034	2.7%
85051	2.6%
85009	2.3%

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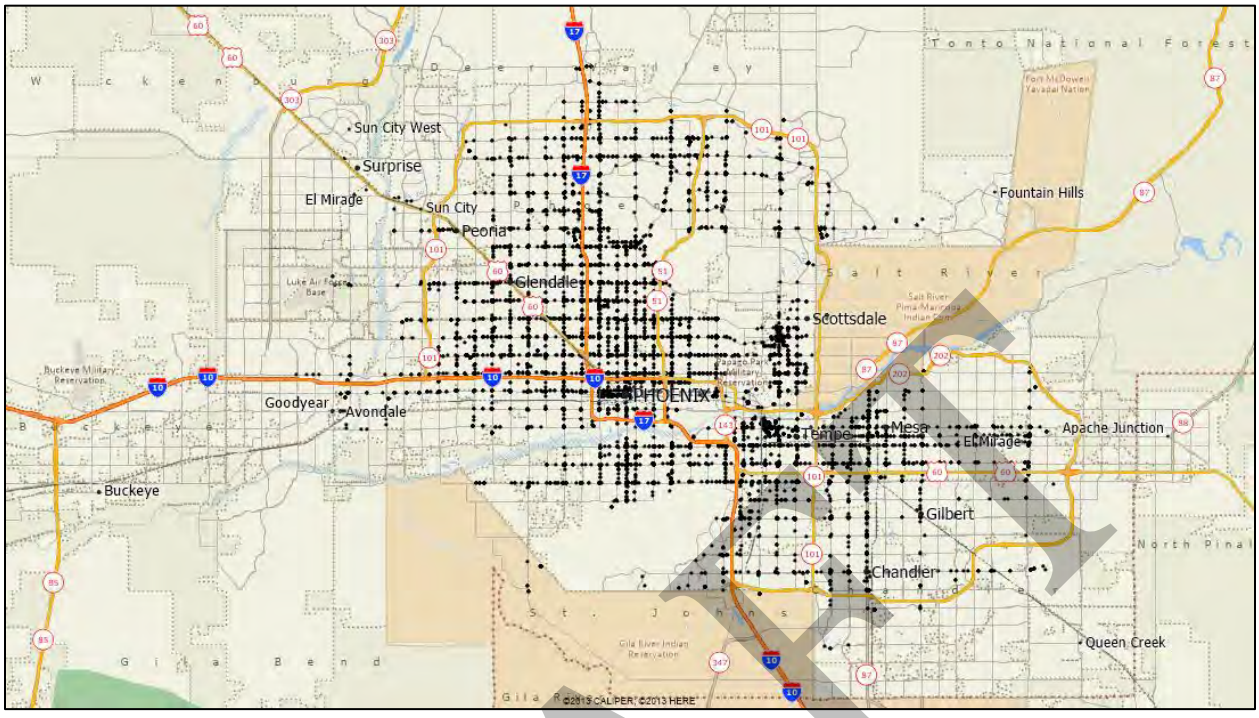
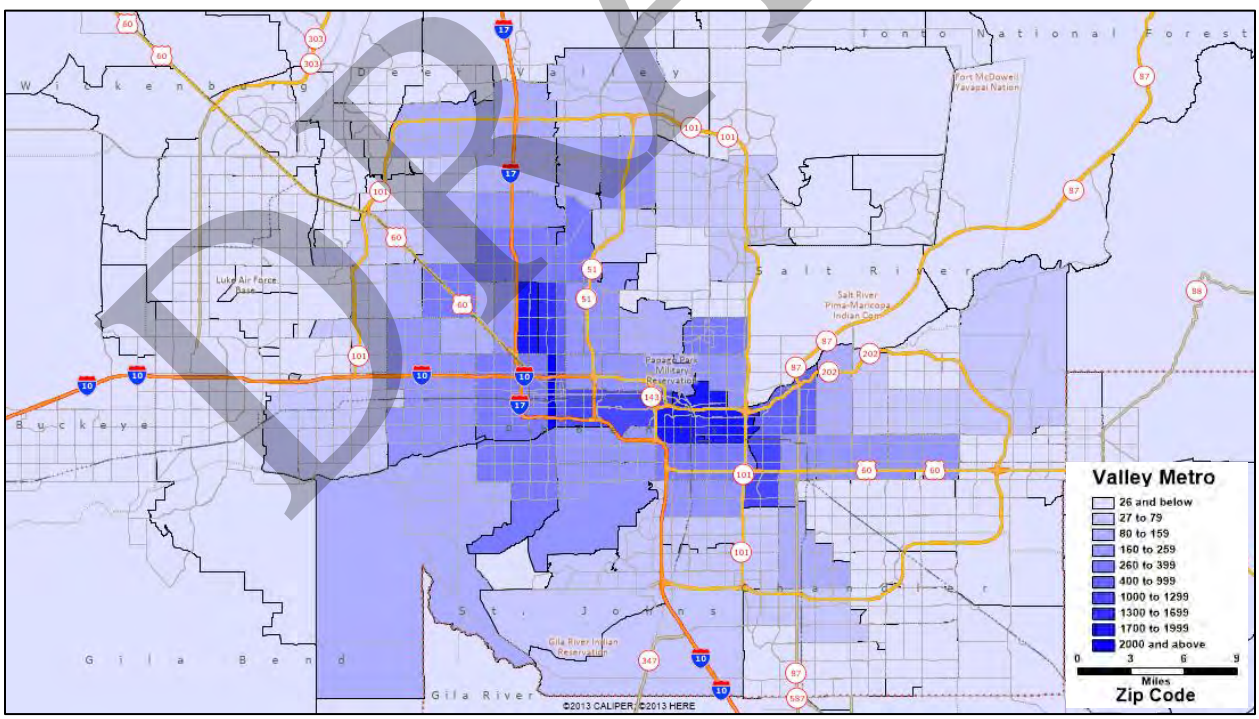
Figure 8-9 Where Transit Users Alighted Transit (Respondent Map)



Notes: The dots on this map show the ALIGHTING address of respondents to the survey.

Figure 8-10 Where Transit Users Alighted Transit (Zip Code Density Map)



Notes: The shading on this map shows the number of respondents to the survey by ALIGHTING zip code.

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Chapter 9 ANALYSIS OF TRENDS (2011 & 2015)

This section of the report presents a comparative analysis of the data collected in the 2015 on-board transit survey with the data collected in the 2011 on-board transit survey.

9.1 Comparison of the 2011 Survey to the 2015 Survey

While most of the survey questions and answer options were the same in 2011 and 2015, there were some differences in the sample size and survey administration methodology. Some of these differences are noted below:

- **Sample Size.** In 2011, the survey goal was to obtain 13,750 completed surveys. Of these, 9,635 were to be completed with bus passengers and 4,115 were to be completed with rail passengers. The actual number of completed surveys was 14,655. Of these, 10,422 were completed with bus passengers and 4,213 were completed with rail passengers.

  In 2015, based on the final goals and using a variable sampling rate, the survey goals were to obtain 15,621 completed surveys. Of those, 12,150 were to be completed with bus passengers and 3,471 were to be completed with rail passengers. The actual number of completed surveys was 21,803. Of these, 12,453 completed with bus passengers and 9,350 were completed with rail passengers.

- **Method of Administration**. Both the 2011 and 2015 surveys were conducted as a face-to-face interview, and tablet PCs were the primary method of collecting the data.

- **Timing of Survey Administration.** In 2011 surveys were administered in the fall season. In 2015, surveys were administered in the spring season. In addition, neither the 2011 nor the 2015 survey was administered on weekends and holidays.

- **Participant Selection**. Both in 2011 and 2015, riders were selected at random to participate using the sampling procedure described in Chapter 4.

- **Incentives**. Both the 2011 and 2015, incentives were distributed to survey participants in the form of a registered drawing. In 2011 $5,000 were distributed to winners and in 2015 two $1,000 cash prizes were handed out.

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Demographic Characteristics

9.1.1 Household Size

The total number of household members by year is shown in Table 9-1 below. Thirty-eight percent (38.4%) of the transit users in the 2011 survey lived in households with four or more occupants compared to 33.1% of all households in 2015.

Table 9-1: Number of People Living in the Household

Persons	2015	2011
One (1)	23.1%	17.8%
Two (2)	24.9%	25.3%
Three (3)	18.8%	18.5%
Four (4)	15.6%	16.5%
Five (5)	8.7%	9.6%
Six or More (6+)	8.9%	12.4%
Grand Total	100.0%	100.0%

9.1.2 Vehicle Availability

Table 9-2 displays the number of working vehicles in household by year. The percentage of transit users that reported having at least one vehicle available to their household decreased from 2011 to 2015. In 2011, 55.1% of transit users indicated that they had one or more vehicles in their household. In 2015, 45.7% indicated that they had one or more vehicles. The percentage with zero vehicles increased from 44.9% in 2011 to 54.3% in 2015.

Table 9-2: Number of Vehicles in the Household

Vehicles	2015	2011
None (0)	54.3%	44.9%
One (1)	25.8%	29.6%
Two (2)	14.2%	16.7%
Three (3)	3.9%	6.2%
Four or more (4+)	1.8%	2.7%
Grand Total	100.0%	100.0%

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9.1.3 Household Income

Total household income by year is shown in the Table 9-3 below excluding those who refused or did not know. The percentage of transit users living in households earning $50,000 or more per year decreased from 2011 to 2015. In 2011, about one in five transit users (19.4%) had an annual household income of $50,000 or more. In 2015, seventeen (17.0%) transit users had an annual household income of $50,000 or more. The percentage of transit users earning less than $15,000 per year also declined from 34.1% in 2011 to 27.7% in 2015.

Table 9-3: Annual Household Income (excluding don't know)

Annual Income Range	2015	2011
Below $5,000	13.3%	15.1%
$5,000-$9,999	5.4%	9.0%
$10,000-$14,999	8.9%	10.0%
$15,000-$19,999	10.8%	7.4%
$20,000-$24,999	11.3%	10.3%
$25,000-$29,999	10.8%	8.2%
$30,000-$34,999	8.7%	7.5%
$35,000-$39,999	6.7%	6.2%
$40,000-$49,999	7.0%	7.0%
$50,000-$59,999	5.0%	6.1%
$60,000-$69,999	3.4%	3.9%
$70,000-$79,000	2.4%	2.6%
$80,000-$89,999	1.8%	2.1%
$90,000-$99,999	1.0%	1.3%
$100,000-$119,999	1.7%	1.6%
$120,000 or more	1.8%	1.8%
Grand Total	100.0%	100.0%

Notes: Refusal option for the tablet survey was created for the 2015 survey.

9.1.4 Age

Table 9-4 shows the age of transit riders by year. The percentage of transit users who are under age 25 decreased from 2011 to 2015. In 2011, 42.5% of transit users were under age 25. In 2015, 36.6% were under age 25. The percentage of transit users who are over the age of 55 increased slightly from 2011 to 2015. In 2011, 9.5% of transit users were 55 and above. In 2015, 12.7% were 55 and above.

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Table 9-4: Age of Transit Users

Age Range	2015	2011
Under 16	2.4%	3.1%
16-18	11.1%	15.3%
19-24	23.2%	24.0%
25-34	22.4%	21.1%
35-44	14.8%	14.3%
45-54	13.5%	12.7%
55-64	9.1%	6.7%
65+	3.5%	2.8%
Grand Total	100.0%	100.0%

9.1.5 Employment Status

Table 9-5 shows the employment status of transit riders by year. The percentage of transit users who are employed either part-time or full-time increased from 2011 to 2015. In 2011, 56.7% of transit users were either employed part-time or full-time. In 2015, 69.0% were either employed part-time or full-time.

Table 9-5: Employment Status

Employment Status	2015	2011
Employed full-time (at least 35 hrs per week)	53.9%	36.7%
Employed part-time (less than 35 hrs per week)	15.1%	20.0%
Not currently employed but seeking work	11.0%	20.6%
Not currently employed and not seeking work	14.7%	19.4%
Retired	4.8%	3.3%
Homemaker	0.6%	Not Provided
Grand Total	100.0%	100.0%

9.1.6 Employed Persons per Household

Table 9-6 shows the number of employed household members by year. The percentage of households with employed members did not change much from 2011 to 2015.

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Table 9-6: Employed Persons per Household

Employed Persons	2015	2011
None (0)	12.5%	14.7%
One (1)	36.6%	38.7%
Two (2)	33.2%	30.9%
Three (3)	11.9%	10.6%
Four (4)	4.0%	3.8%
Five (5)	1.0%	0.9%
Six or More (6+)	0.9%	0.5%
I Don't Know	0.0%	0.0%
Grand Total	100.0%	100.0%

9.1.7 Student Status

Table 9-7 shows the student status of riders by year. The percentage of non-student riders increased from 2011 to 2015. The percentage of college or university students decreased from 24.5% in 2011 to 15.8% in 2015.

Table 9-7: Student Status

Student Status	2015	2011
Not a student	72.8%	59.9%
Yes - college or university	15.8%	24.5%
Yes - student through 12th grade	10.5%	14.4%
Yes - other	0.9%	1.3%
Grand Total	100.0%	100.0%

Notes: Student Housing developed Downtown after 2011 Survey

9.2 Travel Characteristics

In addition to reviewing changes in demographics, changes in travel characteristics from 2011 to 2015 were also assessed, including the types of places where trips began, trip purpose, modes of access and egress, and sources of bus schedule information.

9.2.1 Types of Places Where Transit Trips Began

Table 9-8 shows the type of place where transit riders began their trip by year. Although the percentage of trips that began at home did not change much from 2011 to 2015, the percentage of trips that began at work increased from 15.8% in 2011 to 20.3% in 2015.

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Table 9-8: Where Transit Trips Began

Origin Type	2015	2011
Airport	0.2%	0.1%
College or University	4.8%	9.8%
Elementary School (grades K-5)	0.1%	0.3%
High School (grades 9-12)	4.3%	6.7%
Hotel	0.3%	0.2%
Medical appointment or doctor visit	1.7%	2.2%
Middle School (grades 6-8)	0.2%	0.1%
Recreation or Sightseeing	1.8%	1.3%
Shopping	6.2%	6.4%
Social visit or church or personal	5.1%	7.0%
Your HOME	46.4%	45.8%
Your WORKPLACE	20.3%	15.8%
Other	8.7%	4.5%
Grand Total	100.0%	100.0%

Notes: Student Housing developed Downtown after 2011 Survey

9.2.2 Types of Places Where Transit Trips End

Table 9-9 shows the type of place where transit riders end their trip by year. Although the percentage of trips that began at home did not change much from 2011 to 2015, the percentage of trips that began at work increased slightly from 17.9% in 2011 to 20.2% in 2015.

Table 9-9: Where Transit Trips End

Destination Type	2015	2011
Airport	0.2%	0.2%
College or University	5.5%	8.8%
Elementary School (grades K-5)	0.1%	0.4%
High School (grades 9-12)	4.2%	5.1%
Hotel	0.2%	0.1%
Medical appointment or doctor visit	2.0%	2.2%
Middle School (grades 6-8)	0.2%	0.2%
Recreation or Sightseeing	2.8%	1.5%
Shopping	5.3%	6.9%
Social visit or church or personal	7.0%	10.0%
Your HOME	41.2%	41.2%
Your WORKPLACE	20.3%	17.9%
Other	11.1%	5.6%
Grand Total	100.0%	100.0%

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Notes: Student Housing developed Downtown after 2011 Survey

9.2.3 Trip Purpose

Table 9-10 displays the trip purpose of riders by year. There was a significant increase in the portion of passengers who used public transit to make home-based work trips up from 29.4% in 2011 to 38.7% in 2015. There was a significant decrease in the percent of passengers who used public transit to make home-based college trips from down from 15.0% in 2011 to 8.9% in 2015.

Table 9-10: Trip Purpose

Trip Purpose	2015	2011
Home-Based Airport Trip	0.2%	0.1%
Home-Based College Trip	8.9%	15.0%
Home-Based Medical Trip	2.8%	3.5%
Home-Based Other Trip	19.2%	18.9%
Home-Based Shopping Trip	9.5%	8.9%
Home-Based Work Trip	38.8%	29.4%
Home-Based School Trip	8.2%	10.9%
Non-Home Based Trip	12.4%	13.2%
Grand Total	100.0%	100.0%

Notes: Student Housing developed Downtown after 2011 Survey

9.2.4 Mode of Access to Transit

The difference in how passengers first access public transit for their one-way trip is shown in Table 9-11. There were no significant differences in the modes of access to transit from 2011 to 2015. In 2011, 87.4% of transit users accessed transit by walking. In 2015, 87.4% indicated that they accessed transit by walking. The percentage who drove alone or biked did not change.

Table 9-11: Access Mode to Transit System

Access Mode	2015	2011
Walk	87.2%	87.4%
Was dropped off by someone going someplace else	3.7%	4.6%
Bike	4.6%	4.5%
Drove alone	2.9%	2.9%
Carpooled or vanpooled with others	0.3%	0.3%
Other	1.3%	0.4%
Grand Total	100.0%	100.0%

9.2.5 Mode of Egress from Transit

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Table 9-12 shows how passengers traveled from public transit to their final destination. There were no significant differences in the modes of egress from 2011 to 2015. In 2011, 90.0% of transit users egressed transit by walking to their destination. In 2015, 88.8% indicated that they egressed transit by walking to their destination.

Table 9-12: Egress Mode to Transit System

Egress Mode	2015	2011
Walk	88.8%	90.0%
Be picked up by someone	2.2%	2.9%
Bike	4.7%	4.4%
Drive alone	2.8%	2.5%
Carpool or vanpool with others	0.2%	0.1%
Other	1.3%	0.2%
Grand Total	100.0%	100.0%

Notes: Few options were combined to compare yearly trends.

9.2.6 Source of Bus Schedule Information

Table 9-13 shows the preferred tools for transit schedules by year. The percentage of transit users who rely on the Valley Metro transit book has declined significantly since 2011. In 2011, 31.7% of transit users relied on the transit book as their primary source of schedule information. In 2015, 21.5% indicated that they relied on the transit schedule book. Few changes were made to this question. The introduction of an assortment of mobile sites and Valley Metro's NextRide has decreased the use of a few prior options from 2011 to 2015.

Table 9-13: Where Transit Users Get Schedule Information

Source of Information	2015	2011
Customer service	7.3%	14.4%
Posted schedule at bus stop	11.8%	6.8%
Transit Book	21.5%	31.7%
Valley Metro website	27.5%	29.6%
Mobile site	20.6%	Not Provided
NextRide	8.8%	Not Provided
Other	2.5%	2.6%
I Don't get schedule info	Not Provided	7.2%
I Don't Know	Not Provided	7.7%
Grand Total	100.0%	100.0%

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Chapter 10 Lessons Learned and Opportunities for Improvement

Although the number of completed surveys and the quality of the survey data exceeded the contractual requirements for the project, the research team identified a few opportunities for improvement to enhance the quality of future surveys based on lessons learned from the 2014-2015 Valley Metro On-Board Transit Survey. The opportunities are briefly described below.

- **Additional focus on stop list** Since this issue was not identified until after the administration of the survey began, manual geocoding of some bus stops was required on routes for which the stop inventory was not completed prior to the start of survey. If a stop inventory had been completed before the survey began, the location of all bus stops on each route could have been included in the tablet PC survey program, which would have minimized the number of boarding and alighting locations that had to be manually geocoded after the survey was administered.
- **Coordination of ridership Information prior to collection.** If ridership information had been finalized before the survey collection ended, additional surveys would not have been needed to be collected during Fall 2015. Better adjustments to sampling management could have been made during the spring 2015 collection as well.

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Appendix A: Valley Metro 2015 On-Board Survey (Paper Version)

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VALLEY METRO

(for office use only) Route Code: _____ Time: _____ Interviewer: _____ Serial #: _____

Please take a few moments to help plan for your transit needs by filling out this survey.

All personal information will be kept strictly confidential and WILL NOT be shared or sold.

What is your HOME ADDRESS: (please be specific, ex: 123 W. Main St):
(If you are visiting the Phoenix area, please list the address where you are staying)

Street Address _____ City _____ State _____ Zip Code _____

COMING FROM?

1. What type of place are you COMING FROM NOW?
(the starting place for your one-way trip)

- O Your usual WORKPLACE
- O Other work related
- O College / University (students only)
- O Airport (as an air passenger)
- O Recreation (movies, fishing, etc.)
- O Medical appointment/doctor's visit
- O Social visits (friends/relatives)
- O Personal business (bank, post office)
- O Pick up/drop off someone (daycare,school)
- O Your HOME → *Go to Question #4*
- O Other: _____
- O Shopping
- O Eating/Dining Out
- O School (K-5)
- O School (6-8)
- O School (9-12
- O Sightseeing
- O Hotel
- O Sporting event

2. What is the NAME of the place you are coming from now?

_____

3. What is the EXACT ADDRESS of this place? (OR Intersection if you do not know the exact address:)

_____

City: _____ State: _____ Zip: _____

4. How did you GET FROM the place in Question #1 TO THE VERY FIRST bus or train you used for this one-way trip?

- O Walked all the way: how far did you walk? _____blocks
- O Walked part of the way (got dropped off and then walked)
- O Bike
- O Wheelchair / Scooter
- O Was dropped off by someone (answer 4a)
- O Drove alone and parked (answer 4a)
- O Drove or rode with others and parked (answer 4a)

4a. Where did you get ON the first bus or train you used for this one-way trip (Write the nearest intersection / park-and-ride lot / rail station below):

_____

5. Where did you get ON this bus/train?
Please provide the nearest intersection / station name / park-and-ride lot:

_____

GOING TO?

6. What type of place are you GOING TO NOW?
(the ending place for your one-way trip)

- O Your usual WORKPLACE
- O Other work related
- O College / University (students only)
- O Airport (as an air passenger)
- O Recreation (movies, fishing, etc.)
- O Medical appointment/doctor's visit
- O Social visits (friends/relatives)
- O Personal business (bank, post office)
- O Pick up/drop off someone (daycare,school)
- O Your HOME → *Go to Question #4*
- O Other: _____
- O Shopping
- O Eating/Dining Out
- O School (K-5)
- O School (6-8)
- O School (9-12
- O Sightseeing
- O Hotel
- O Sporting event

7. What is the NAME of the place you are going to now?

_____

8. What is the EXACT ADDRESS of this place? (OR Intersection if you do not know the exact address:)

_____

City: _____ State: _____ Zip: _____

9. How will you GET TO your destination (listed in Question #6) after you get off the LAST bus or train you will use for this one-way trip?

- O Walk all the way: how far will you walk? _____blocks
- O Walk part of the way (will walk then get picked up)
- O Bike
- O Wheelchair / Scooter
- O Be picked up by someone (answer 9a)
- O Get in a parked vehicle & drive alone (answer 9a)
- O Get in a parked vehicle & drive/ride w/others (answer 9a)

9a. Where will you get off the last bus or train you are using for this one-way trip (Write the nearest intersection / park-and-ride lot / rail station below):

_____

10. Where will you get OFF this bus/train?
Please provide the nearest intersection / station name / park-and-ride lot:

11. INCLUDING THIS BUS/TRAIN, how many TOTAL BUSES/TRAINS will you use to make THIS ONE-WAY TRIP?

O One, only this bus/train O Two O Three O Four or more

11a. Please list the routes and/or rail stations in the exact order you use them for this one-way trip.

START → [ ] → [ ] → [ ] → [ ] → [ ] → **END**

1st route #/rail station | 2nd route/rail station | 3rd route/rail station | 4th route/rail station | 5th route/rail station

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OTHER INFORMATION ABOUT THIS TRIP(s)

12. What time did you BOARD this bus/train? _____ : _____ am / pm (circle one)

13. Will you (or did you) make this same trip on exactly the same routes in the opposite direction today?
O No O Yes - At what time did/will you leave for this trip in the opposite direction? _____:_____ am/pm (circle one)

Other Information

14. What kind of fare did you use for this trip?
O All-Day Pass O 7-Day Pass O 15-Day Pass O 31-Day Pass O FREE
O ASU U-Pass O Employer Subsidized Pass (Platinum Pass) O Semester Pass O Courtesy Pass
O Full Fare O Youth Fare O Senior Fare O Person with Disability Fare
O Field Trip Pass O Dial A Ride ID Card O Reduced Fare O Other: _____

15. How do you usually get transit schedule Information?
O Transit Book O Valley Metro website O Customer service O Posted schedule at bus stop
O Mobile site O NextRide O Other (specify)_____

ABOUT YOU AND YOUR HOUSEHOLD

16. How many vehicles (cars, trucks, or motorcycles) are available to your household? _____ vehicles

17. [If #16 is more than NONE] Could you have used one of these vehicles for this trip? O Yes O No

18. Including YOU, how many people live in your household? _____ people

19. Including YOU, how many adults (age 16 and older) live in your household? _____ people

20. Including YOU, how many people in your household are employed full/part-time outside the home?__ people

21. Are you: (check the one response that BEST describes you)
O Employed full-time (at least 35hrs per week) O Employed part-time (less than 35hrs per week)
O Not currently employed but seeking work O Not currently employed and not seeking work
O Retired O Homemaker

22. Are you a student? (check the one response that BEST describes you)
O Not a student O Yes – Full Time college/university O Yes – K - 12th grade
O Yes – Part Time college/university O Yes – vocational/technical/trade school O Yes – other

22a. [If #22 is Yes] Please specify your college/university/school name:_____

23. Do you have a valid driver's license? O Yes O No

24. Are you a United States Veteran? O Yes O No

25. Are you a visitor to the Phoenix area? O Yes O No 25a What is the duration of your stay? _____ days

26. Are you a person with a disability? O Yes O No
26a. If #26 is Yes] Which of the following types of disabilities apply, if any?
O Low vision O Deaf/hard of hearing O Mobility problem-use a wheelchair O declined
O Blindness O Mental/cognitive impairment O Mobility problem-do not use wheelchair O Other_____

27. What is your AGE? O Under 16 O 16-18 O 19-24 O 25-34 O 35-44 O 45-54 O 55-64 O 65+

28. Are you? (check all that apply)
O American Indian / Alaska Native O Asian O Black/African American O Hispanic/Latino
O Native Hawaiian / Pacific Islander O White O Other: _____

29. What is your gender? O Male O Female

30. Which of the following BEST describes your TOTAL ANNUAL HOUSEHOLD INCOME in 2014 before taxes?
O Below $5,000 O $20,000 - $24,999 O $40,000 - $49,999 O $80,000 - $89,999
O $5,000-$9,999 O $25,000 - $29,999 O $50,000 - $59,999 O $90,000 - $99,999
O $10,000-$14,999 O $30,000 - $34,999 O $60,000 - $69,999 O $100,000 - $119,999
O $15,000-$19,999 O $35,000 - $39,999 O $70,000 - $79,999 O .120,000 or more

31. Do you speak a language other than English at home? O No O Yes - Which language? _____
IF YES: How well do you speak English? O Very Well O Well O Less than well O Not at all

REGISTER TO WIN $1000

People who submit an accurately completed survey will be entered in a random drawing for one of TWO $1000 cash prizes. You must provide your home address at the beginning of the survey to be eligible.

Name: _____

Phone Number: (____) _____

E-mail address: _____

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Appendix B: Valley Metro 2015 On-Board Survey (Tablet Version)

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Figure B-1. On-Board Transit Survey: Start-up Page (Tablet Version)

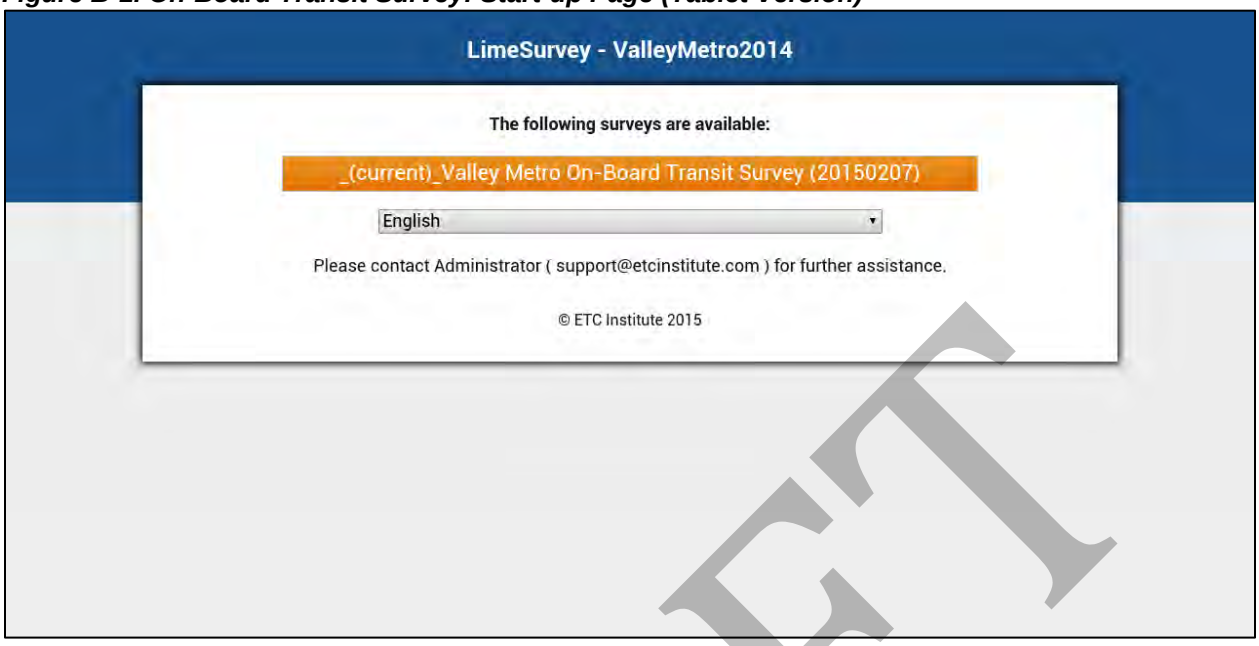

Figure B-2. On-Board Transit Survey: Interviewer's Initial (Tablet Version)

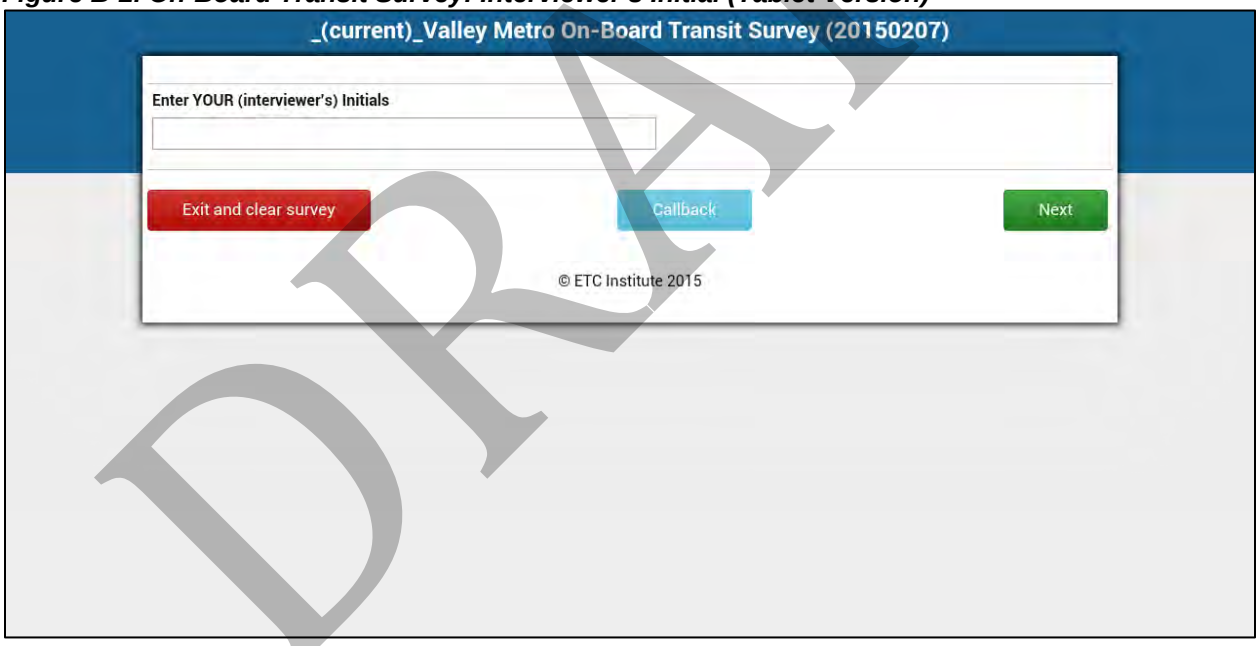

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Figure B-3. On-Board Transit Survey: Select a Route (Tablet Version)

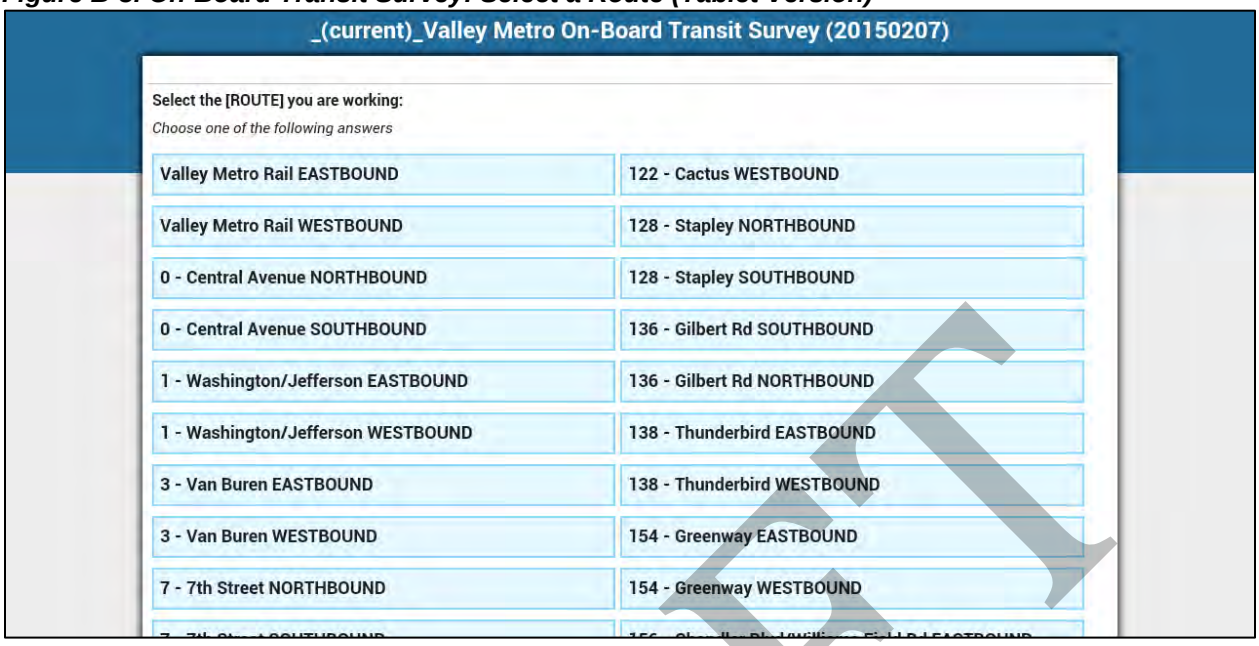

Figure B-4. On-Board Transit Survey: Random Surveyor Selection (Tablet Version)

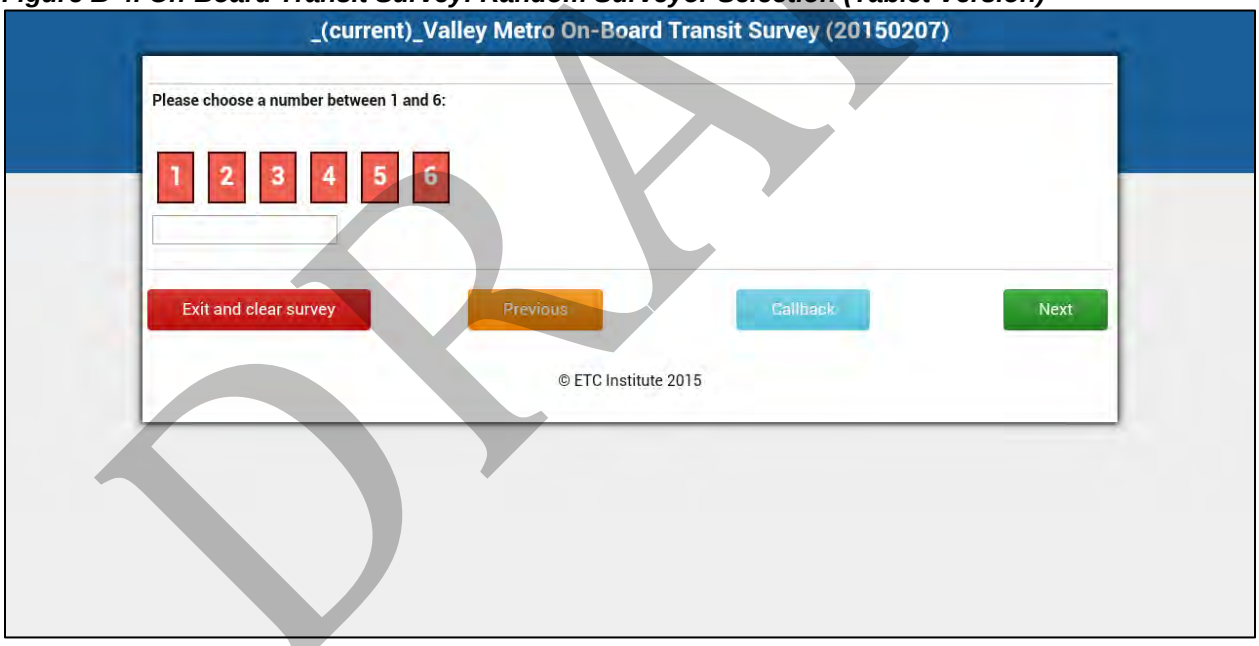

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Figure B-5. On-Board Transit Survey: Survey Opening Page (Tablet Version)

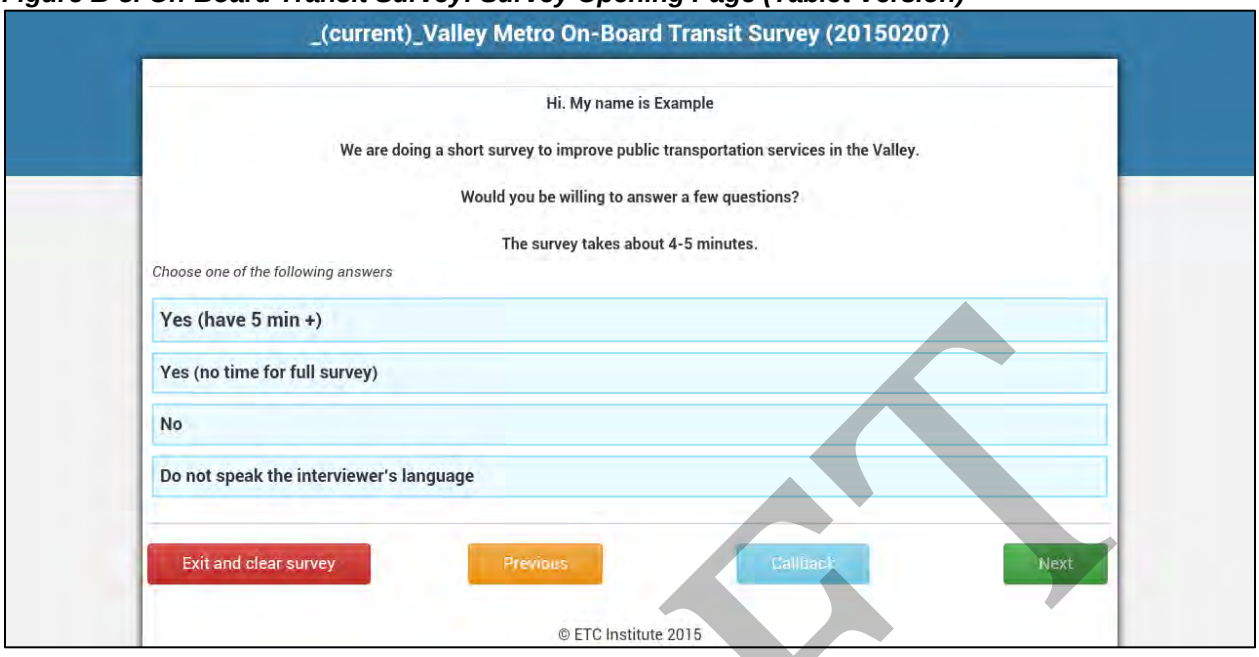

Figure B-6. On-Board Transit Survey: Home Address (Tablet Version)

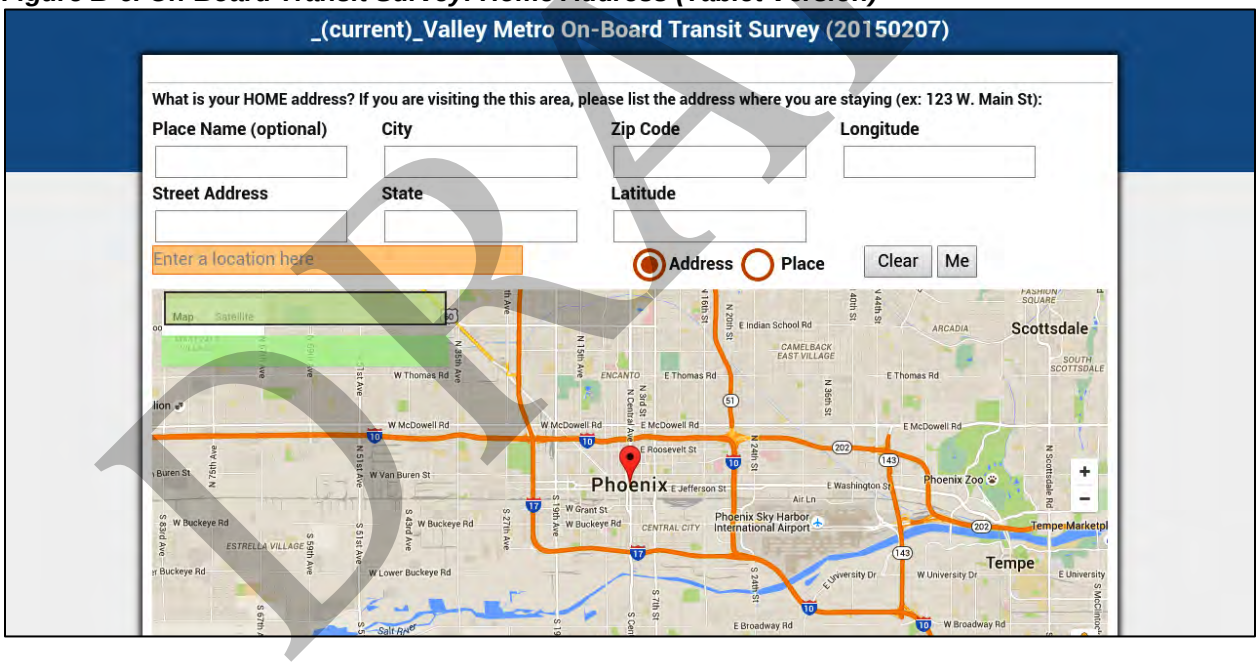

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Figure B-7. On-Board Transit Survey: Origin Type (Tablet Version)

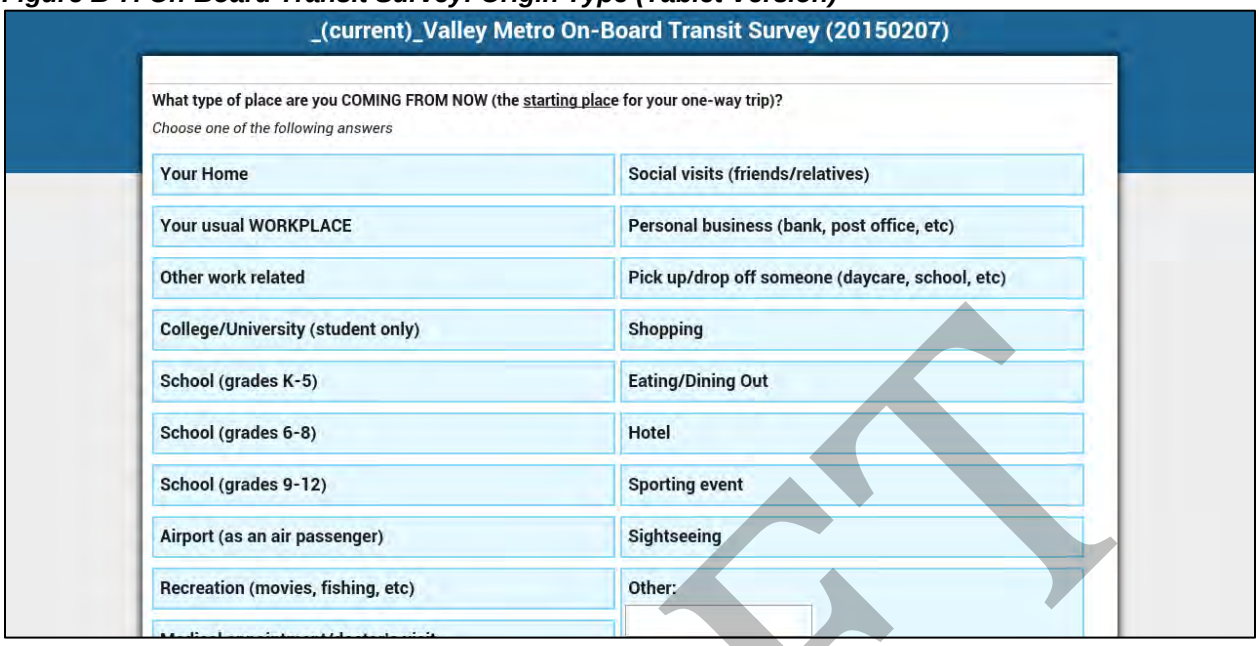

Figure B-8. On-Board Transit Survey: Origin Location (Tablet Version)

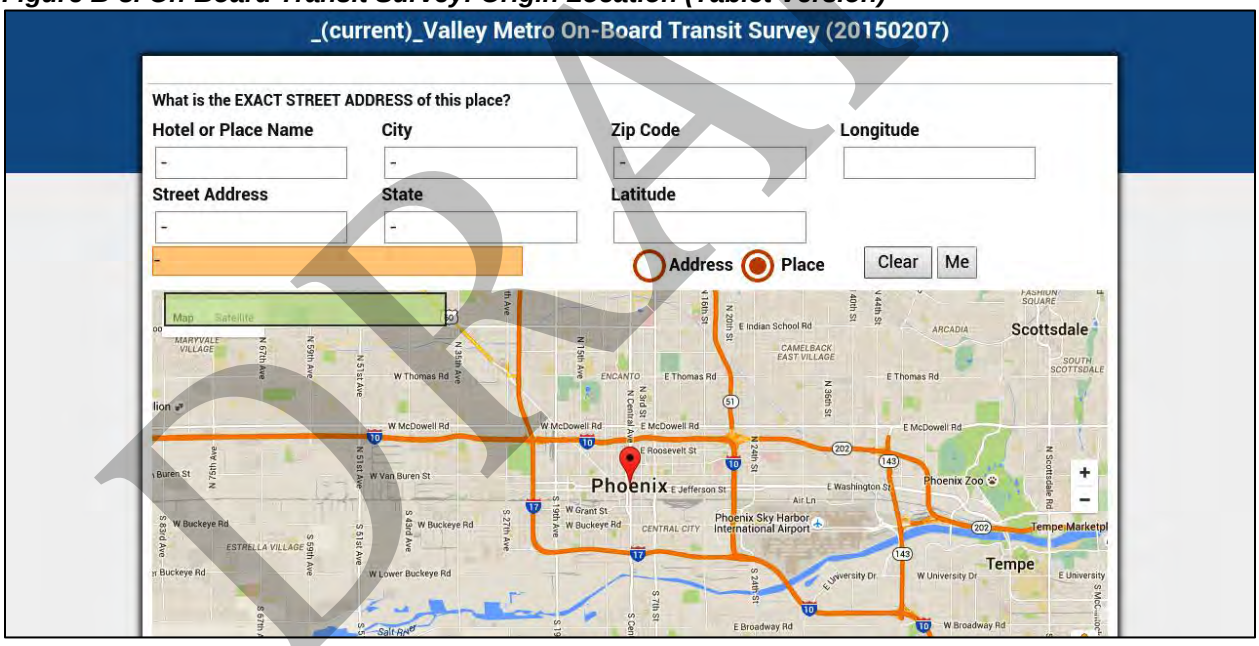

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Figure B-9. On-Board Transit Survey: Access Mode (Tablet Version)

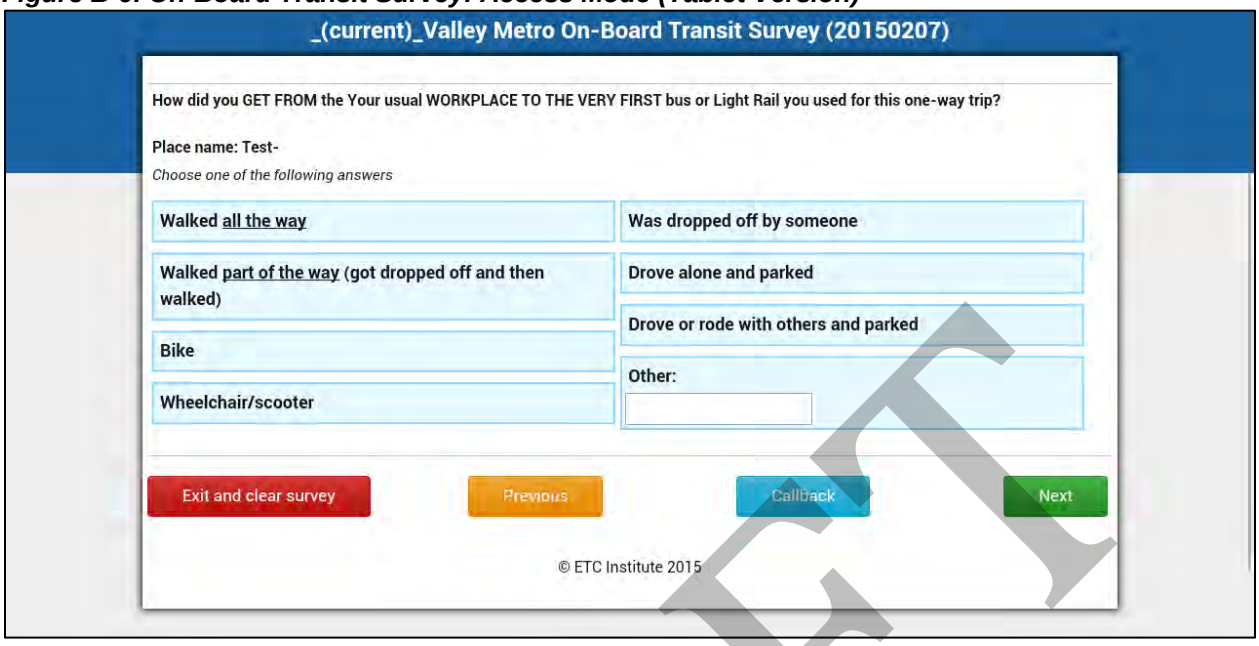

Figure B-10. On-Board Transit Survey: Vehicle Location (Tablet Version)

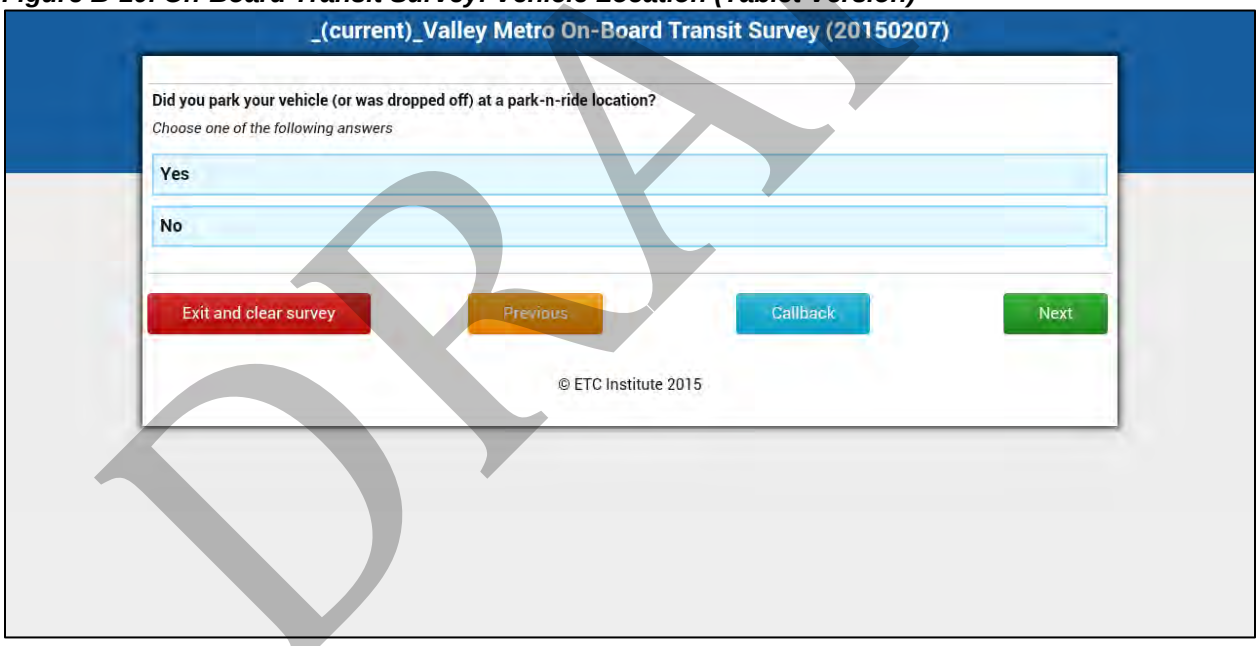

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Figure B-11. On-Board Transit Survey: Vehicle Location (Park-n-ride) (Tablet Version)

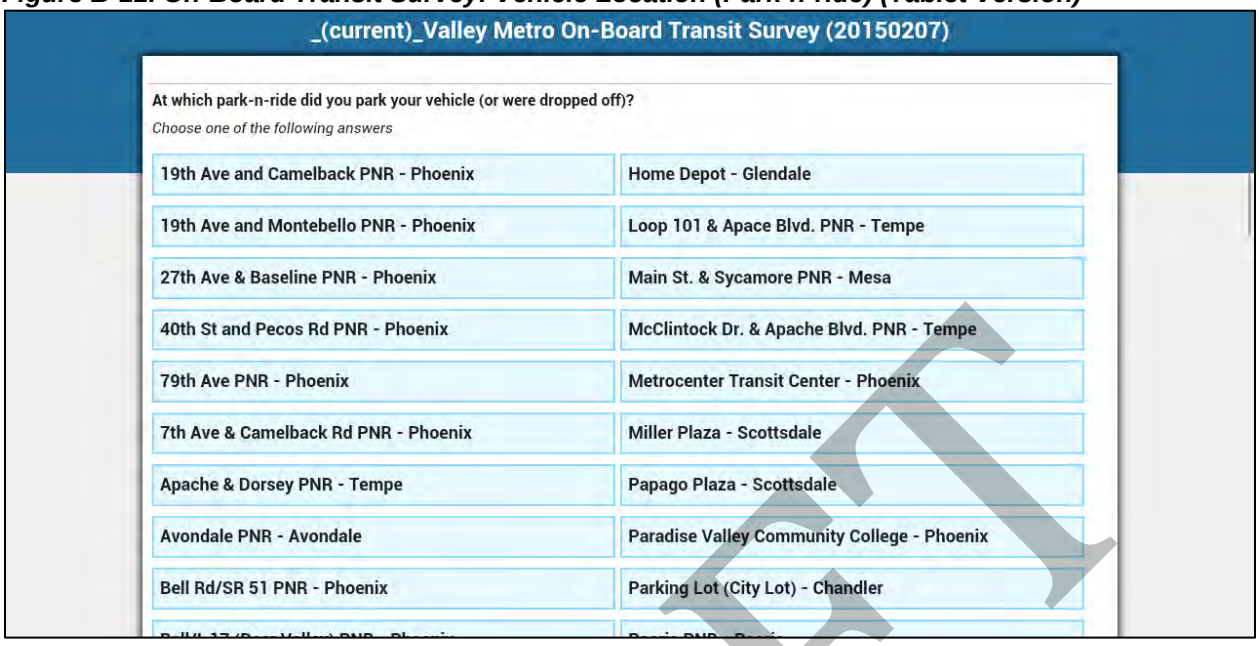

Figure B-12. On-Board Transit Survey: Boarding Location (Tablet Version)

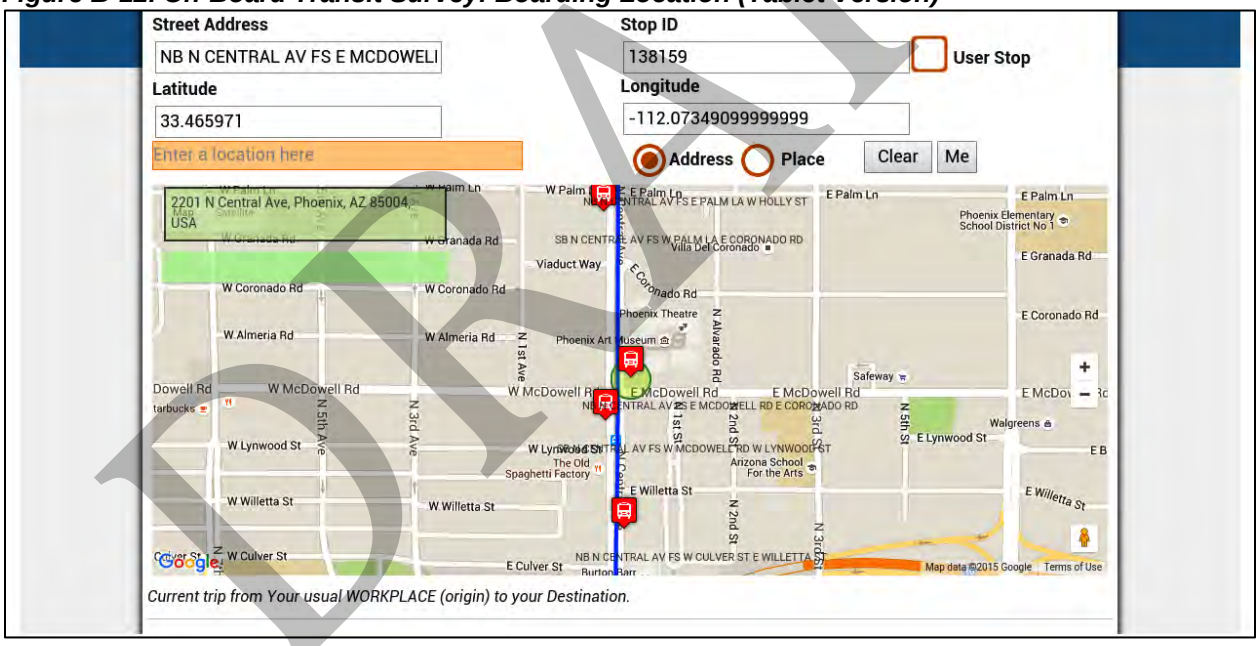

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Figure B-13. On-Board Transit Survey: Destination Type (Tablet Version)

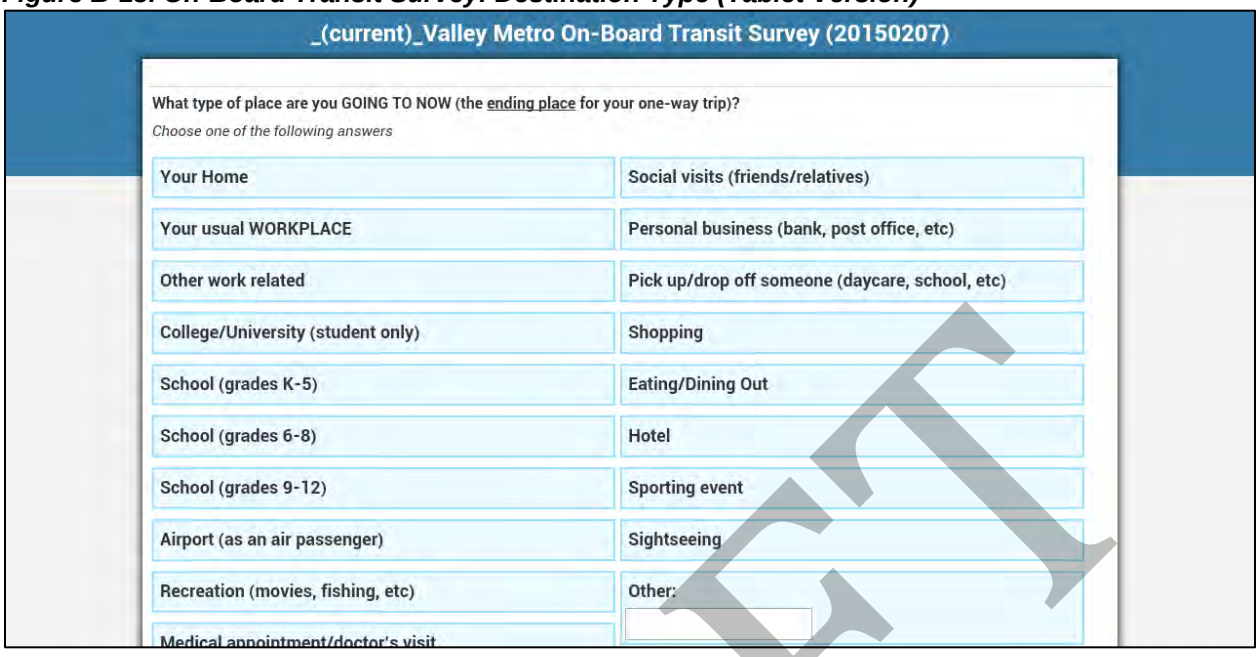

Figure B-14. On-Board Transit Survey: Destination Name (Tablet Version)

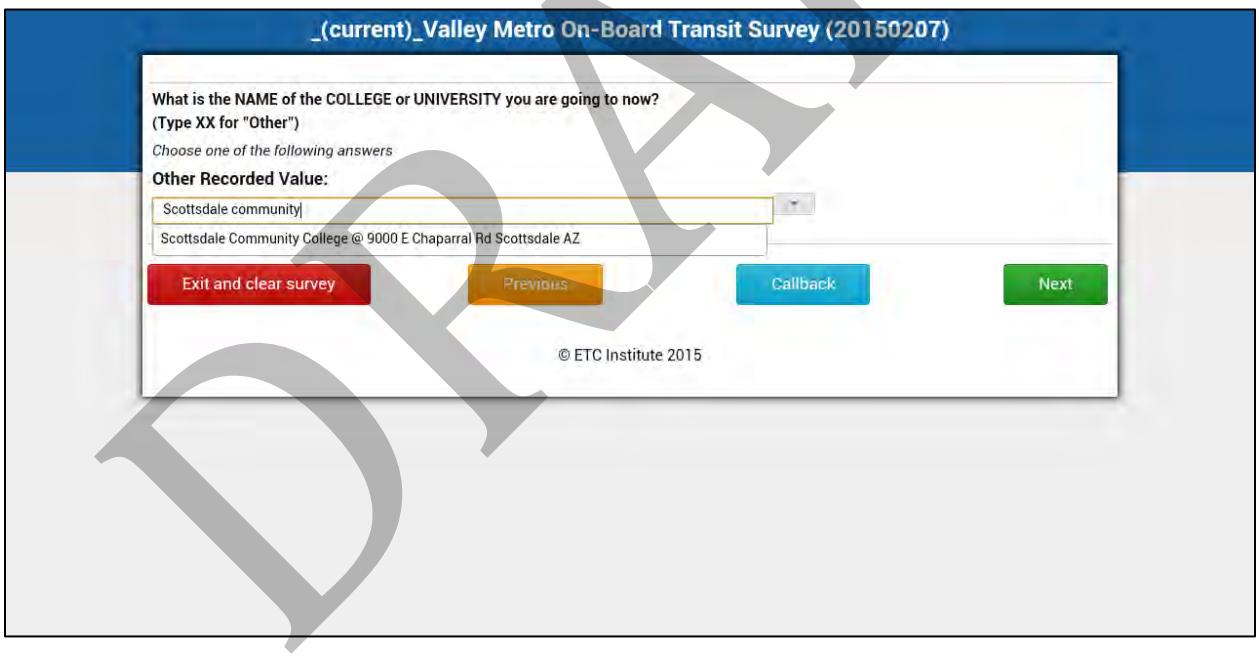

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Figure B-15. On-Board Transit Survey: Egress Location (Tablet Version)

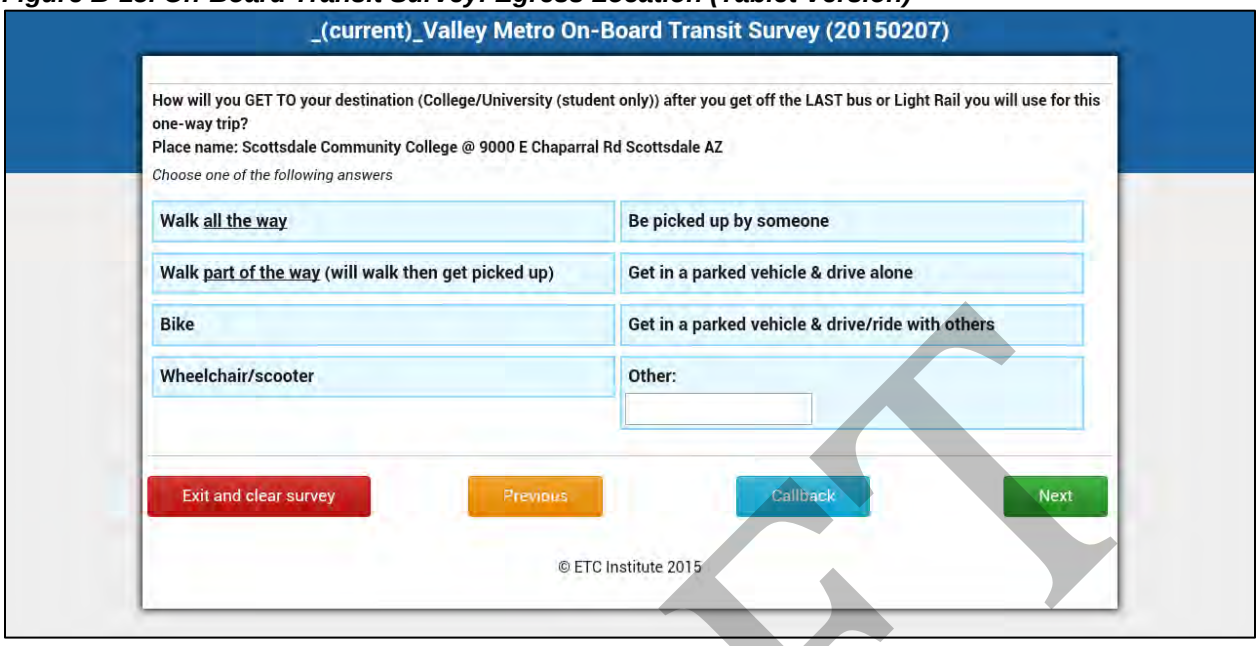

Figure B-16. On-Board Transit Survey: Blocks Walked (Tablet Version)

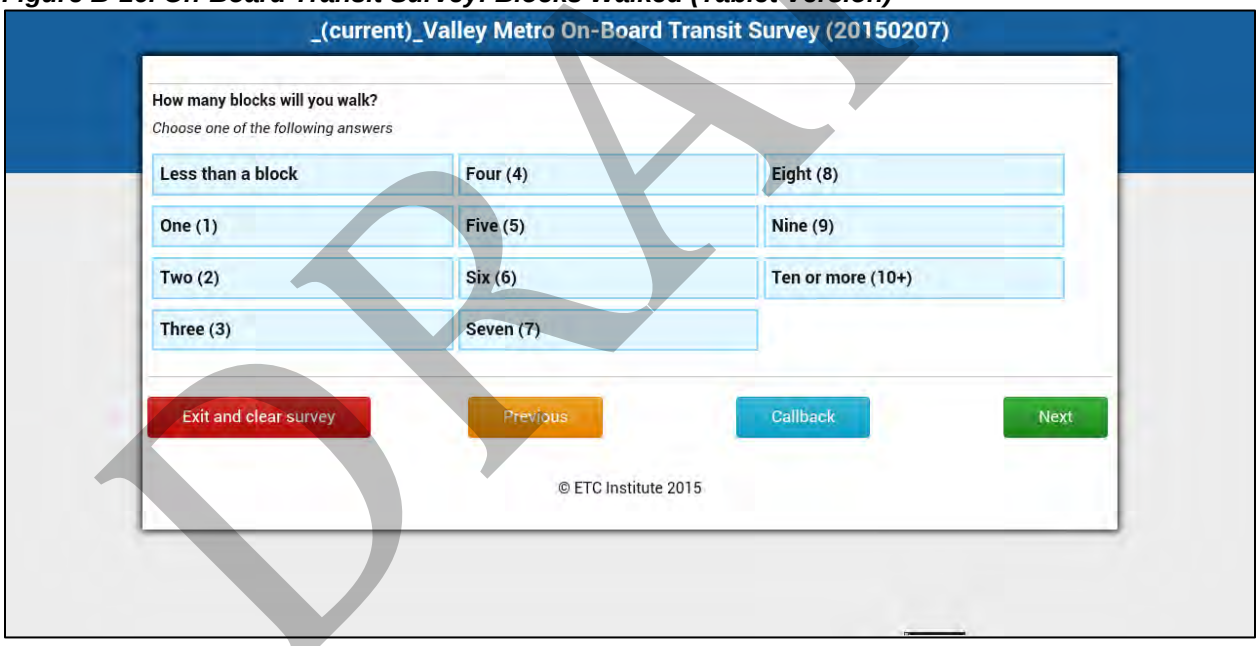

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Figure B-17. On-Board Transit Survey: Alighting Location (Tablet Version)

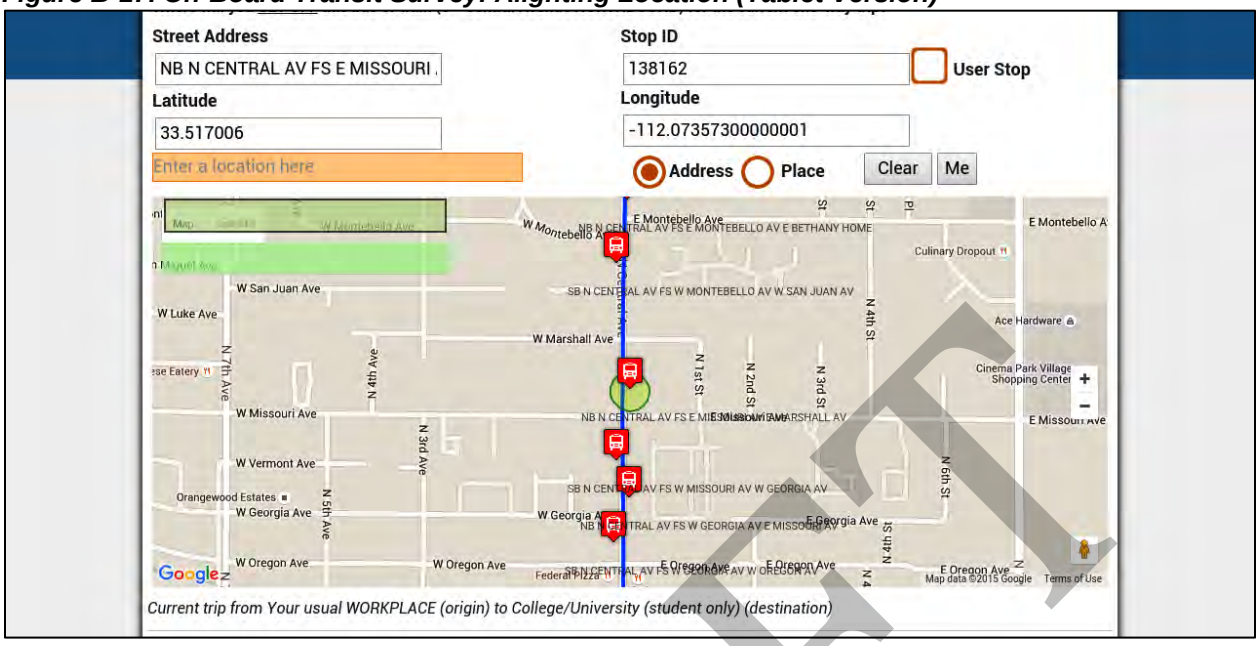

Figure B-18. On-Board Transit Survey: Transfer before (Tablet Version)

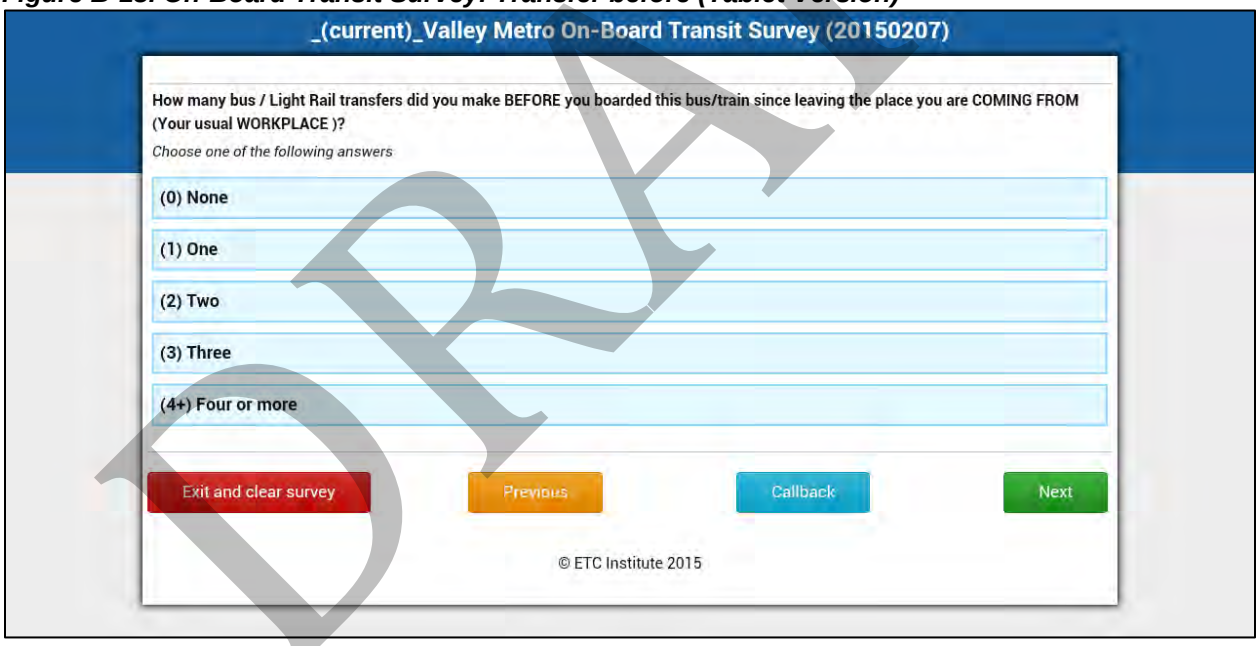

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Figure B-19. On-Board Transit Survey: Transfer Options (Tablet Version)

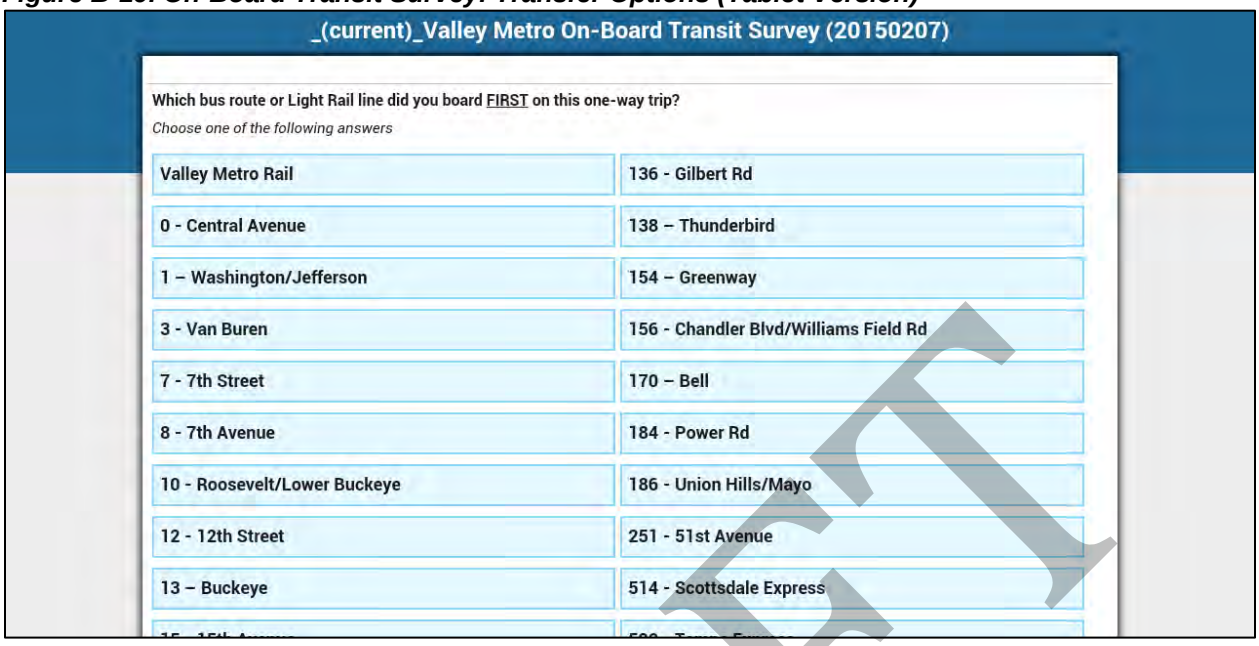

Figure B-20. On-Board Transit Survey: Transfers after (Tablet Version)

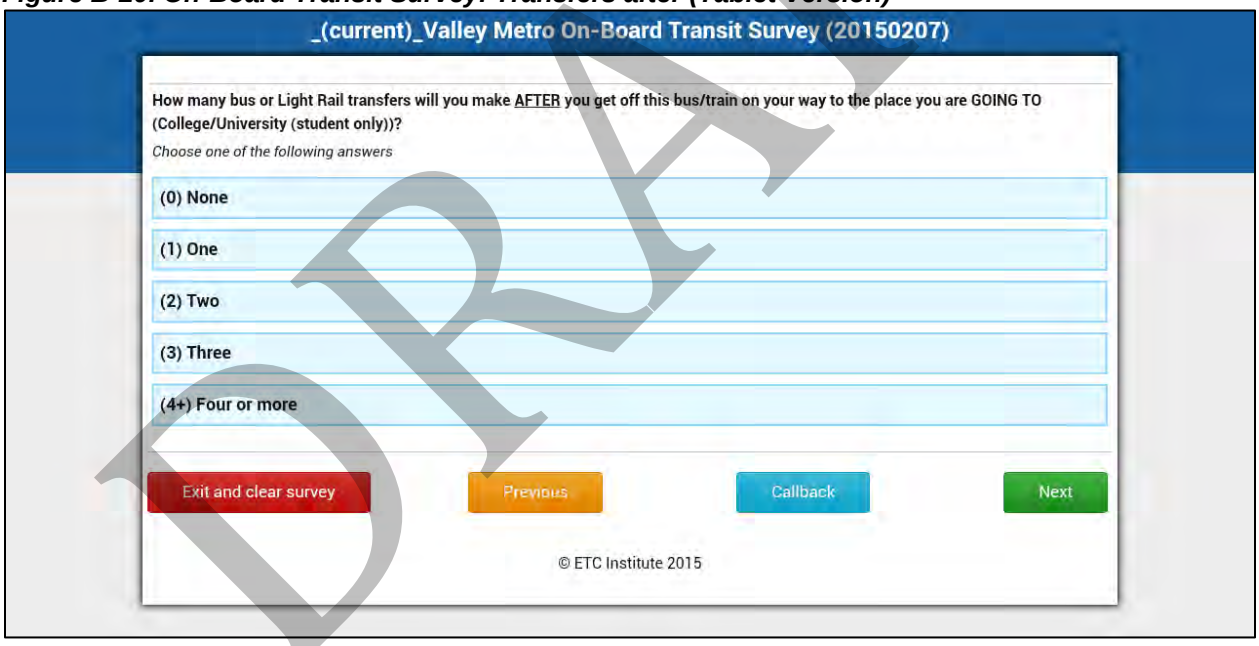

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Figure B-21. On-Board Transit Survey: Summary Screen (Tablet Version)

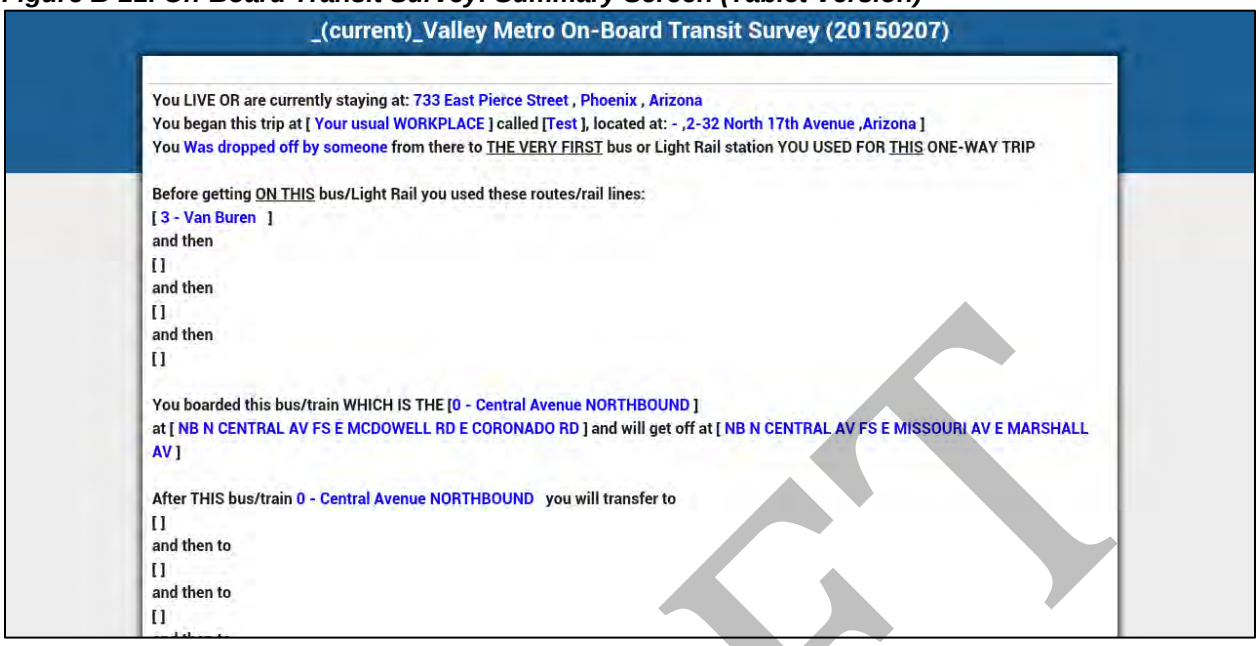

Figure B-22. On-Board Transit Survey: Boarding Time (Tablet Version)

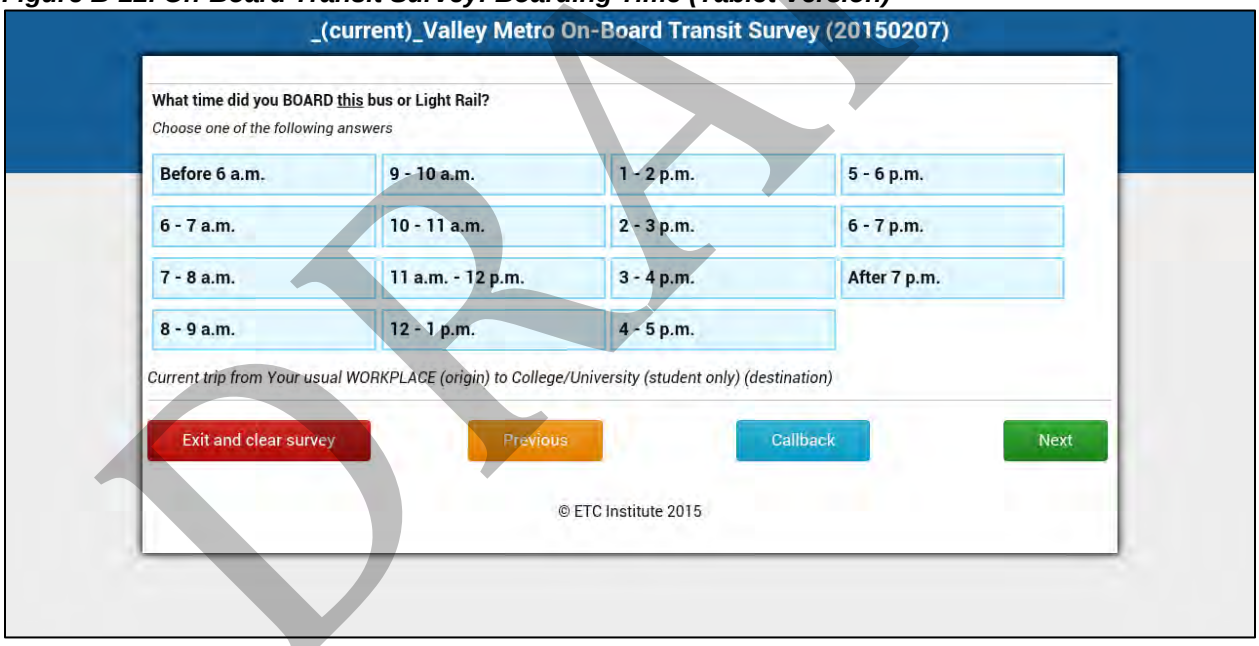

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Figure B-23. On-Board Transit Survey: Trip in Opposite Direction (Tablet Version)

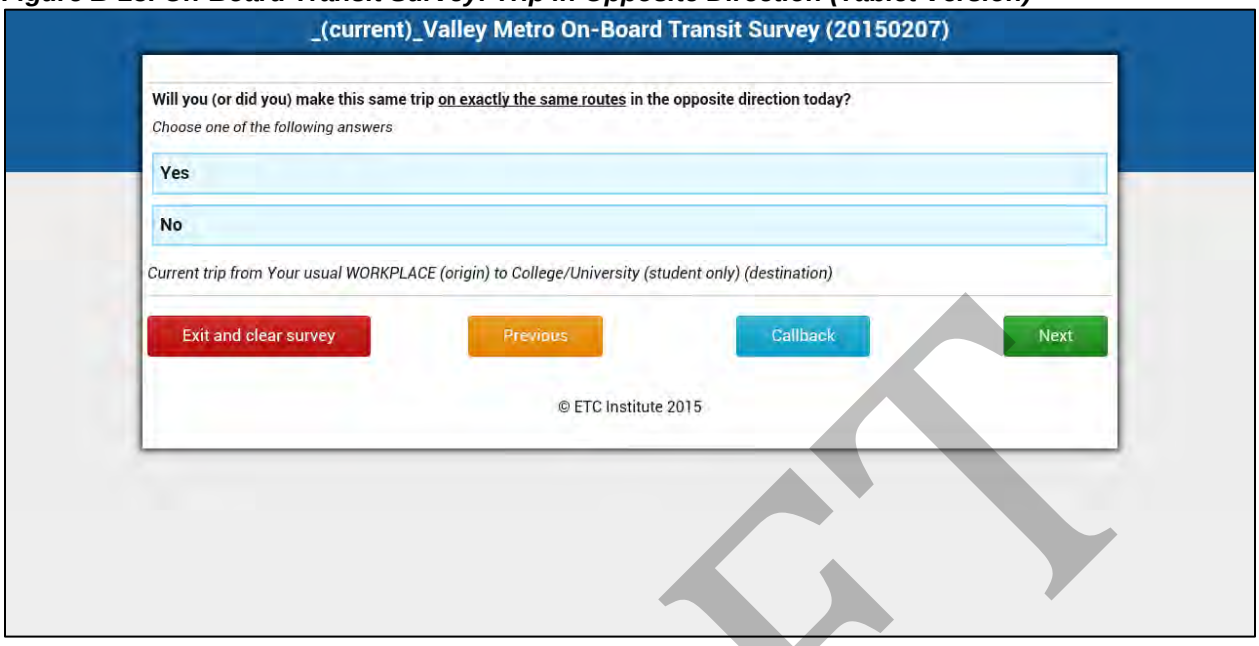

Figure B-24. On-Board Transit Survey: Time of Opposite Direction Trip (Tablet Version)

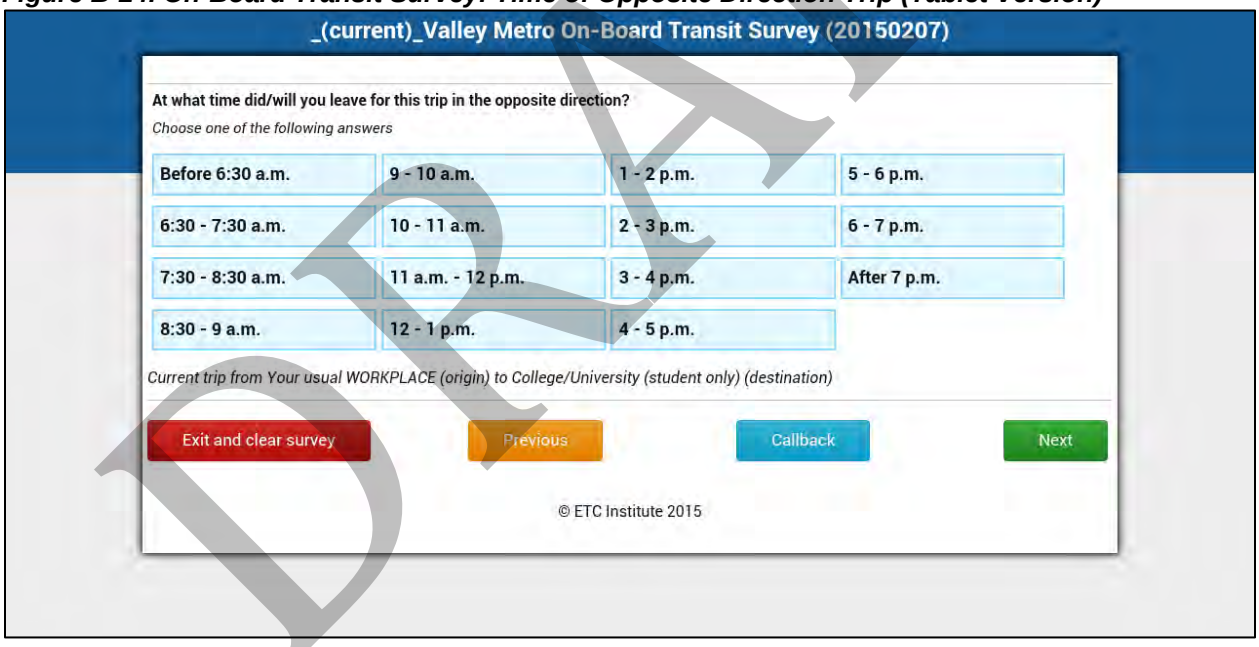

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Figure B-25. On-Board Transit Survey: Pass Type (Tablet Version)

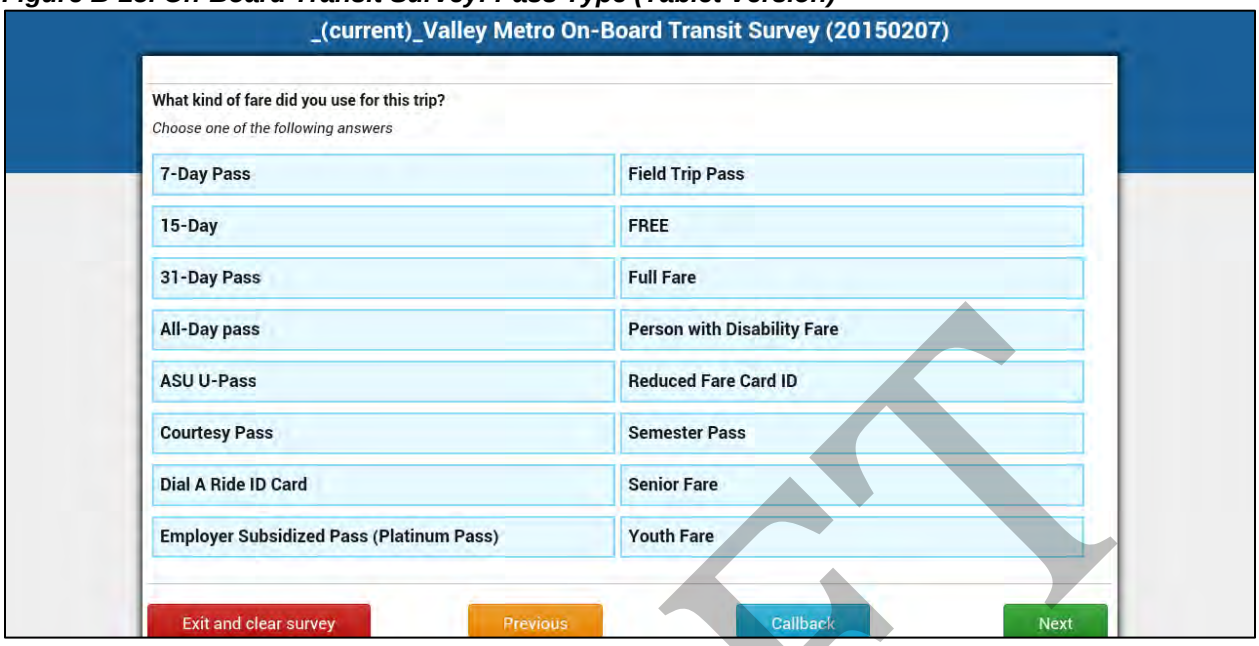

Figure B-26. On-Board Transit Survey: Trip Schedule Tools (Tablet Version)

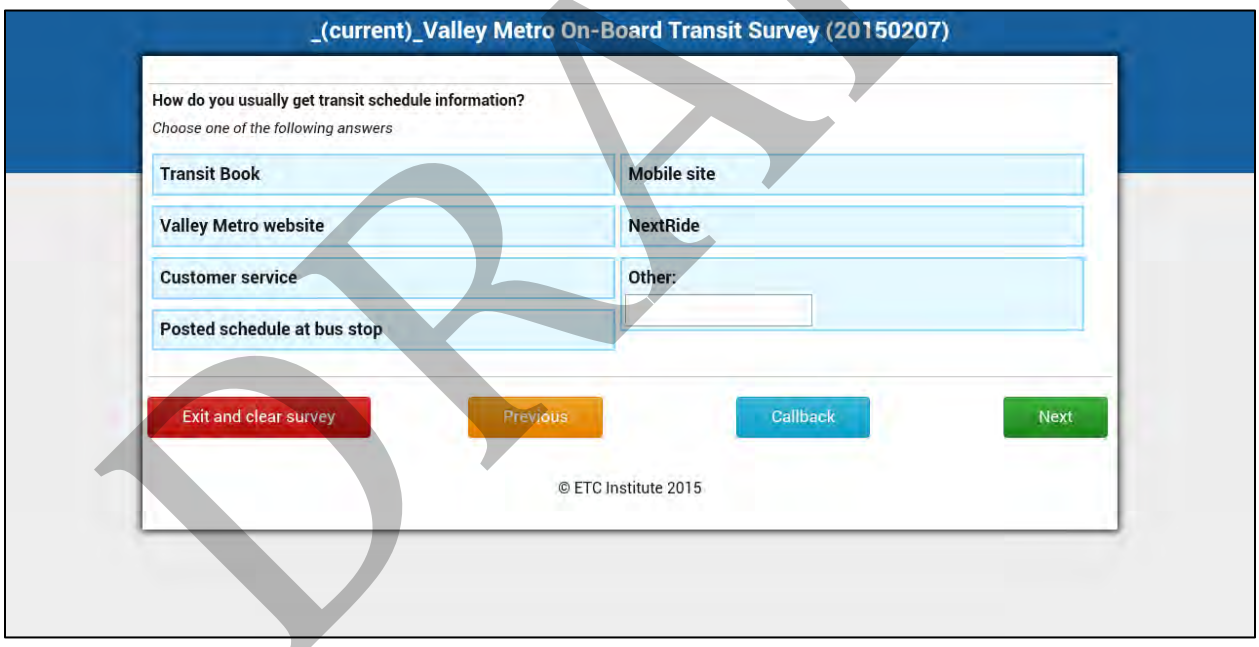

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Figure B-27. On-Board Transit Survey: Working Vehicle in Household (Tablet Version)

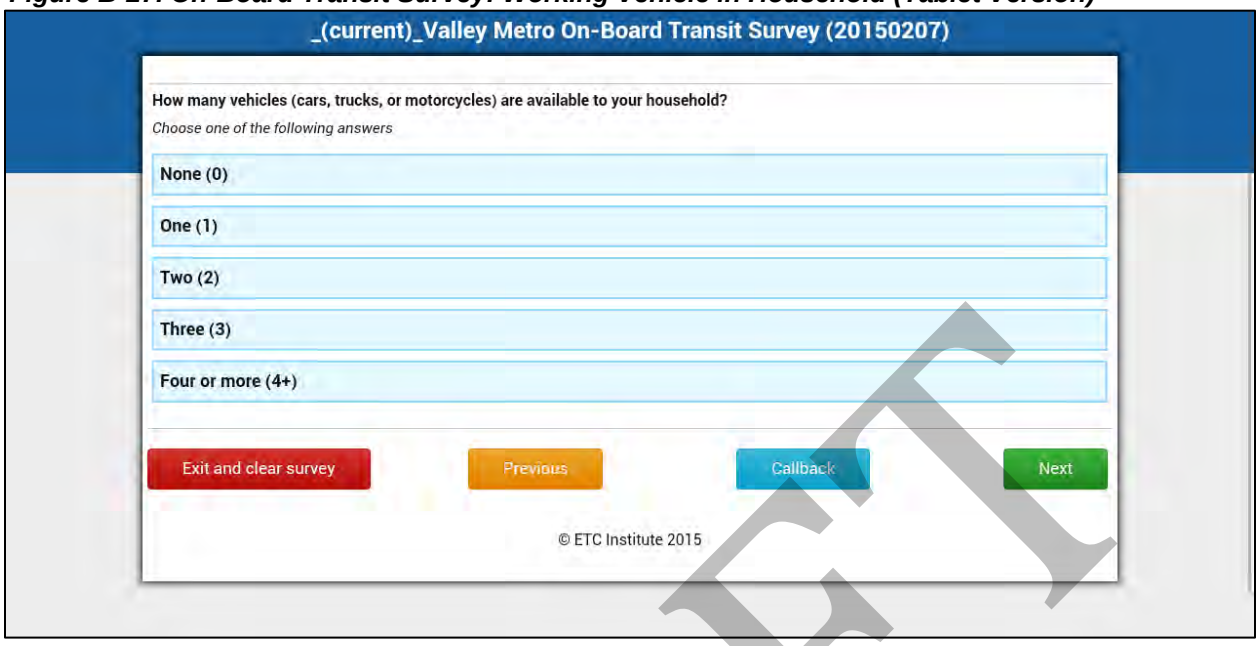

Figure B-28. On-Board Transit Survey: Number of People in Household (Tablet Version)

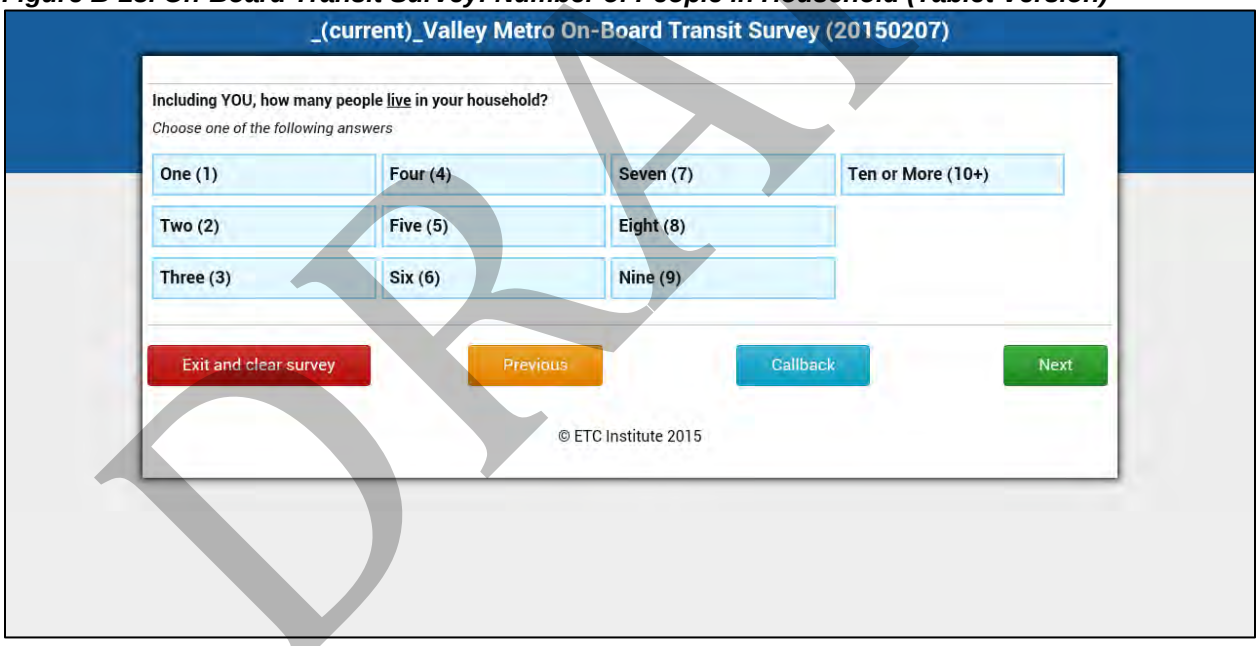

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Figure B-29. On-Board Transit Survey: How many people adults in Household (Tablet Version)

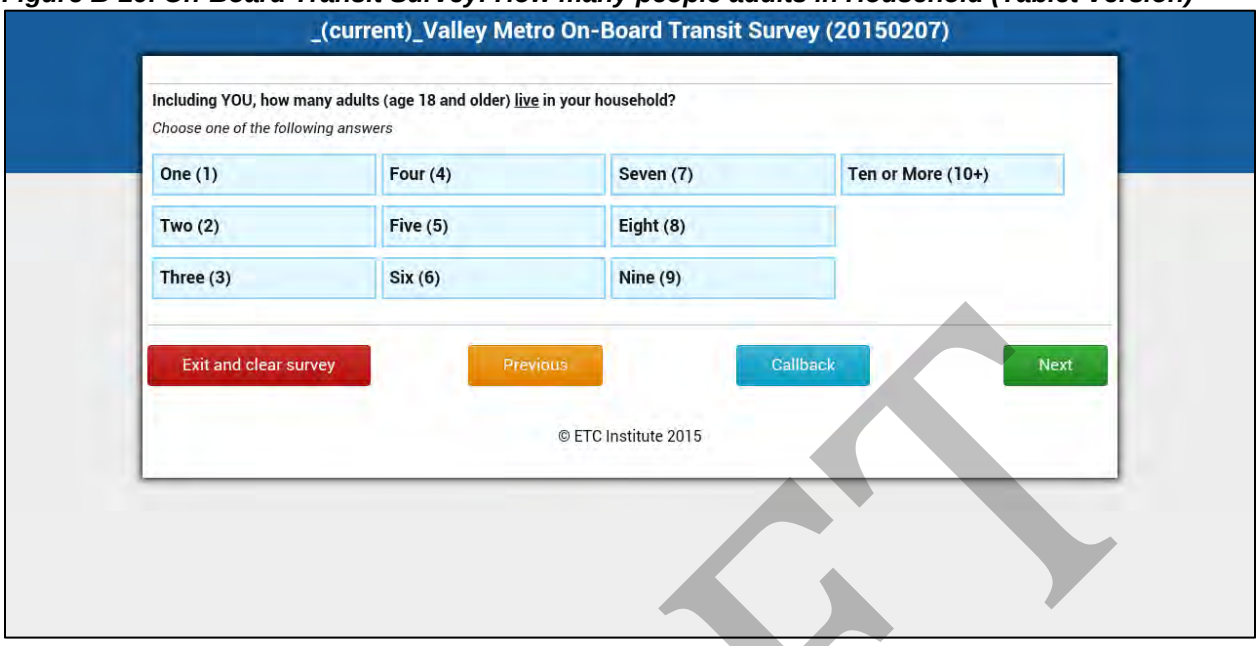

Figure B-30. On-Board Transit Survey: How many people employed in Household (Tablet Version)

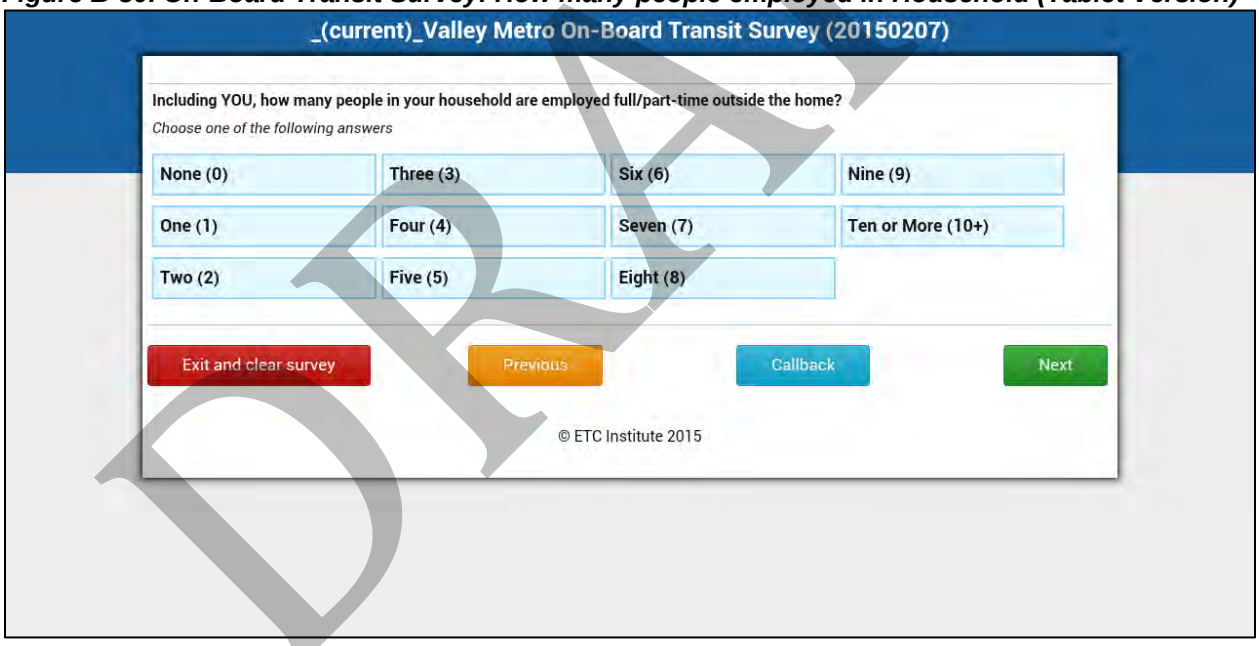

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Figure B-31. On-Board Transit Survey: Employment Status (Tablet Version)

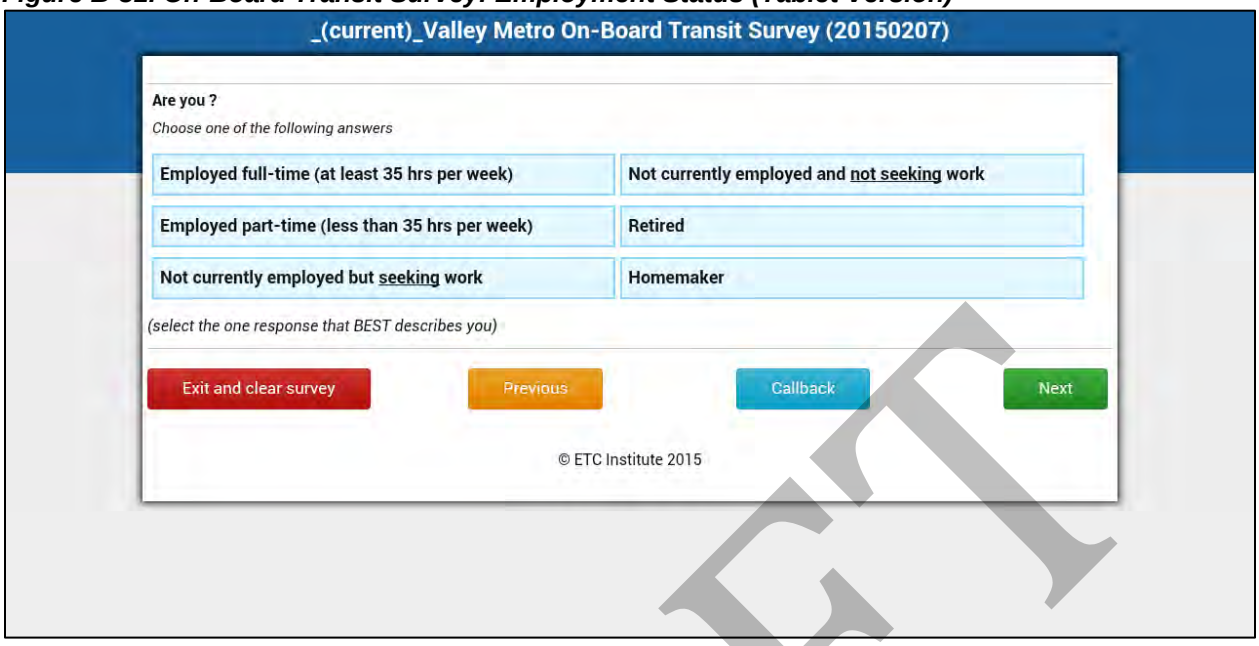

Figure B-32. On-Board Transit Survey: Student Status (Tablet Version)

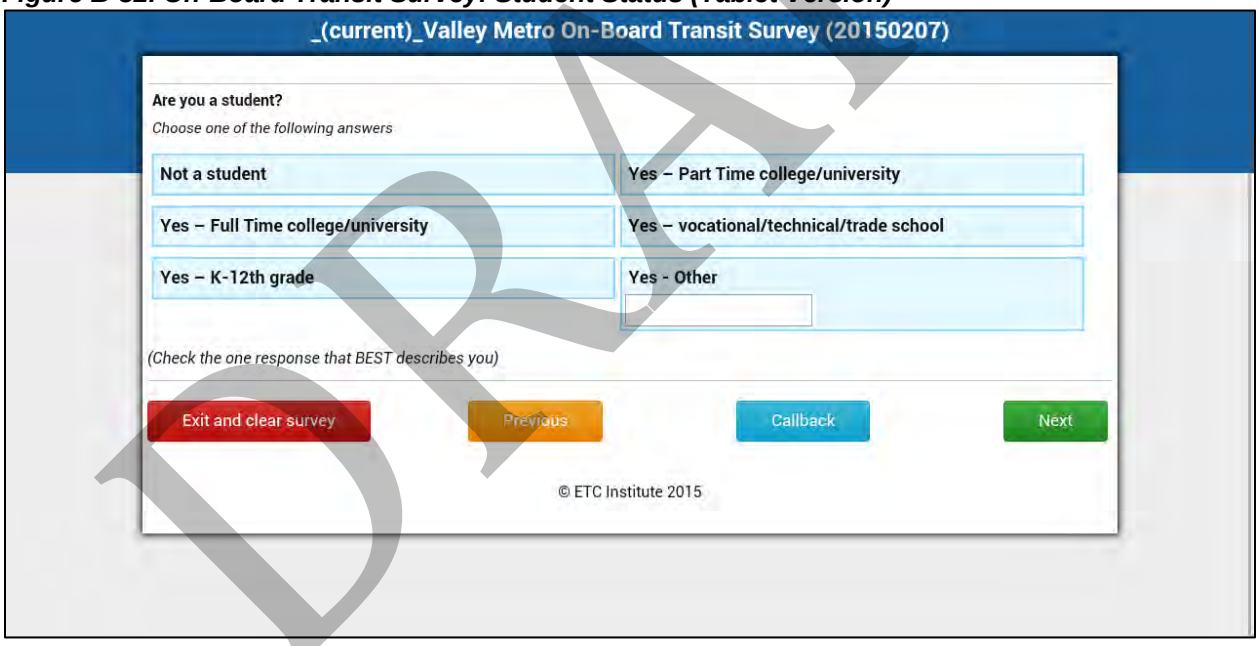

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Figure B-33. On-Board Transit Survey: Driver's License (Tablet Version)

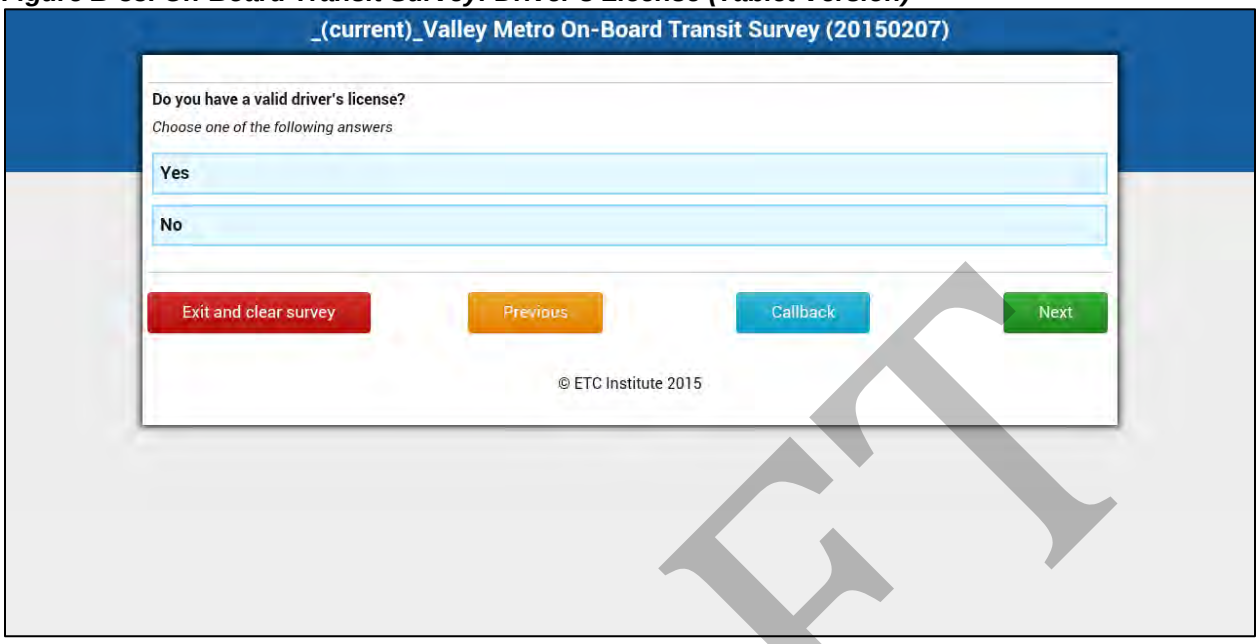

Figure B-34. On-Board Transit Survey: Veteran Status (Tablet Version)

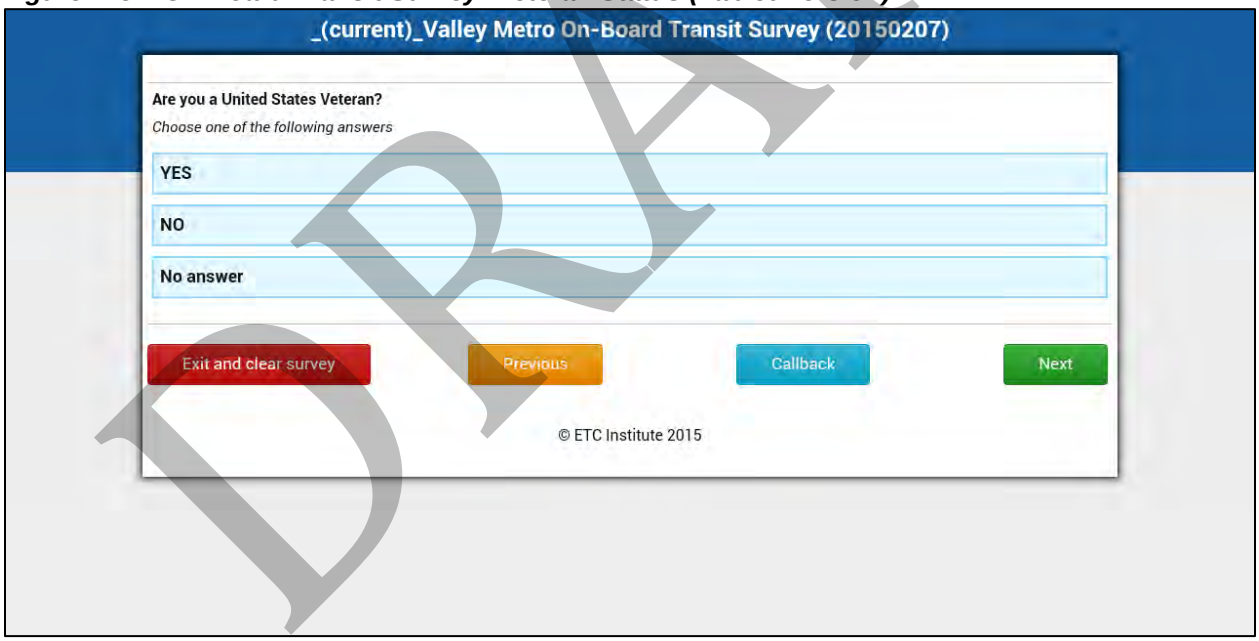

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Figure B-35. On-Board Transit Survey: Visitor Status (Tablet Version)

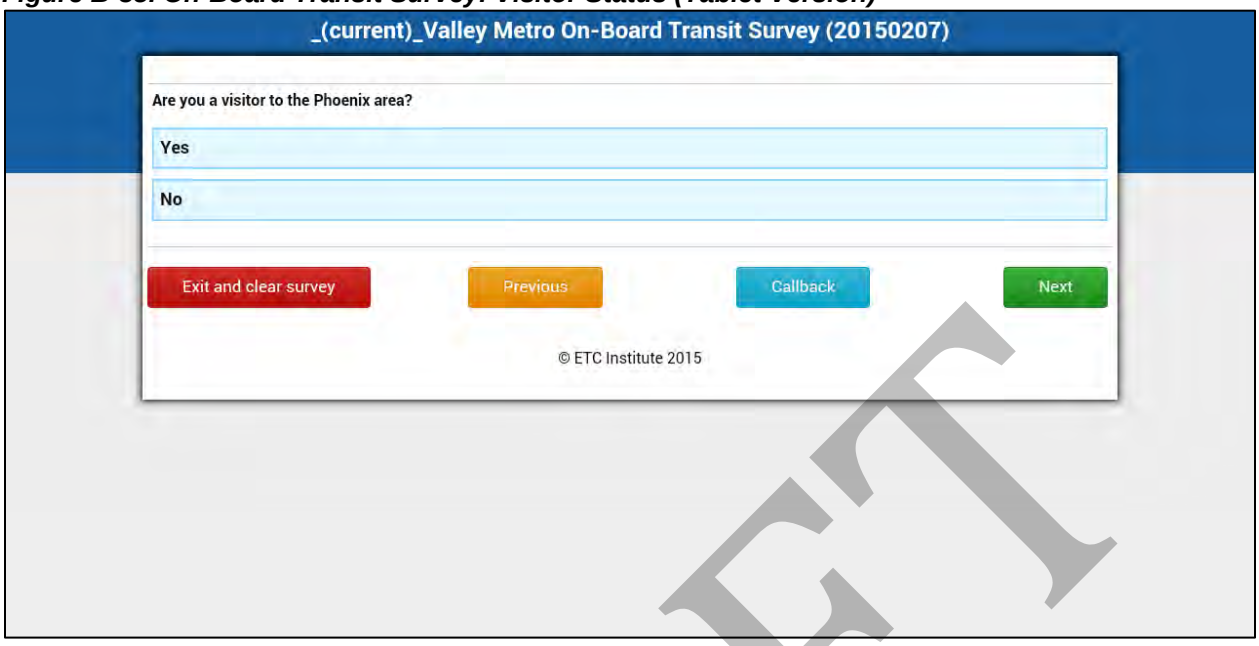

Figure B-36. On-Board Transit Survey: Disability Status (Tablet Version)

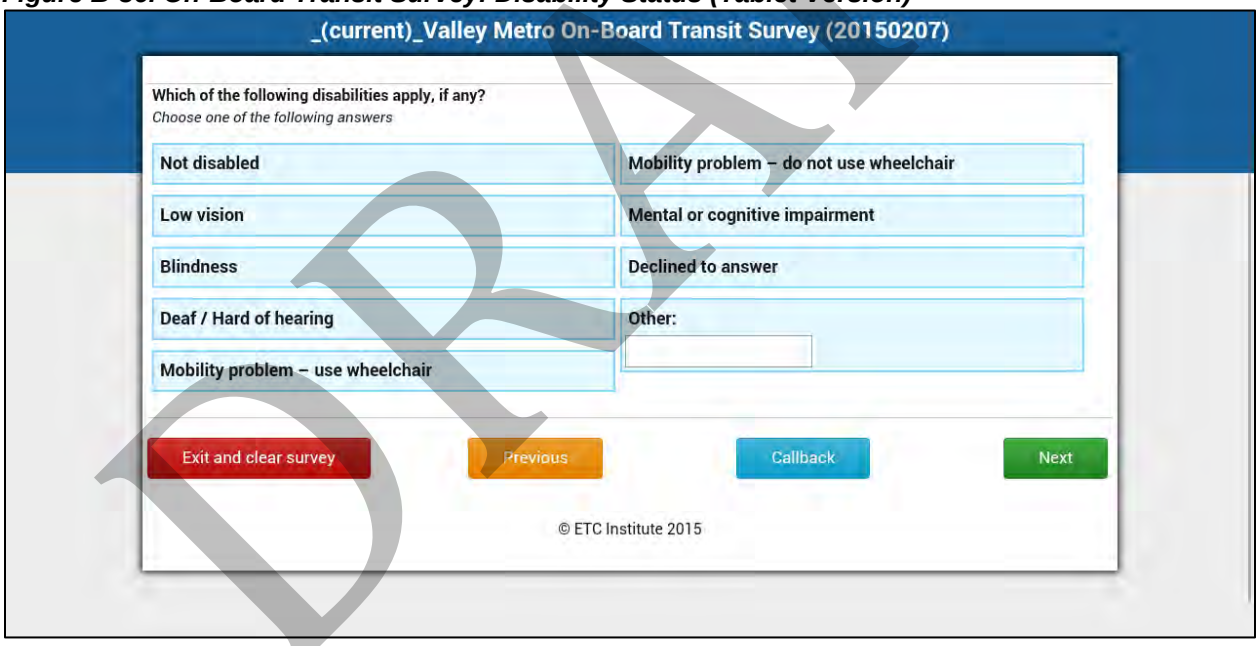

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Figure B-37. On-Board Transit Survey: Age of Rider (Tablet Version)

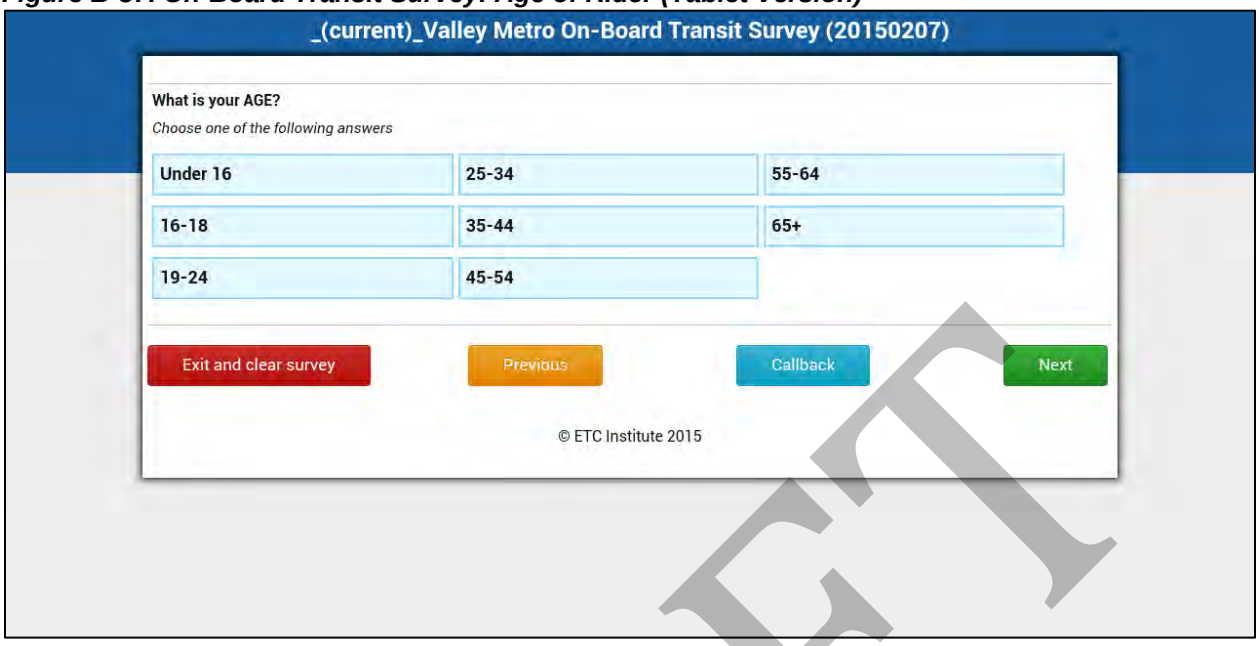

Figure B-38. On-Board Transit Survey: Ethnic Background of Rider (Tablet Version)

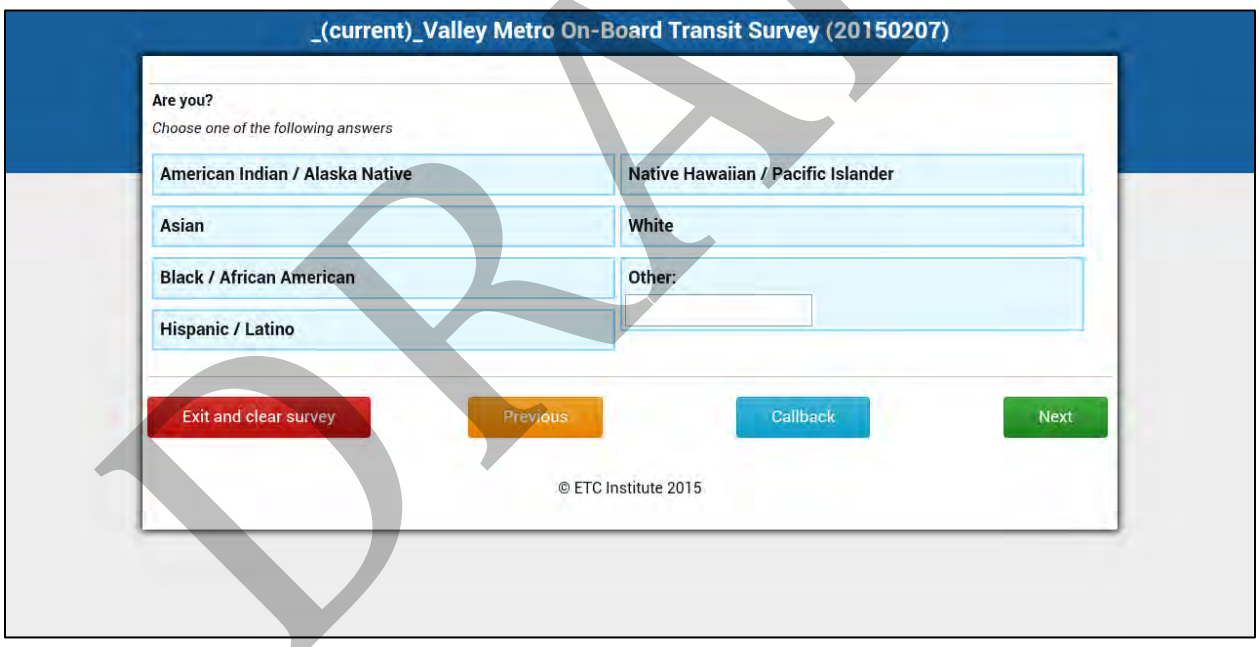

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Figure B-39. On-Board Transit Survey: Household Income (Tablet Version)

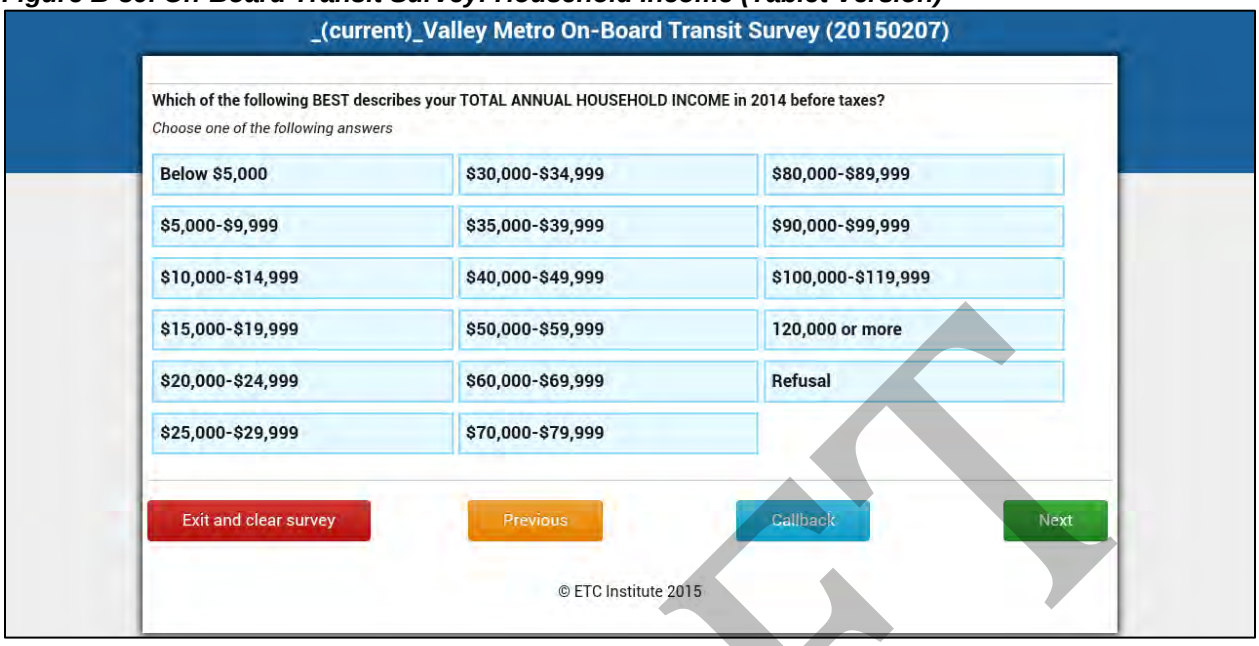

Figure B-40. On-Board Transit Survey: Language other than English (Tablet Version)

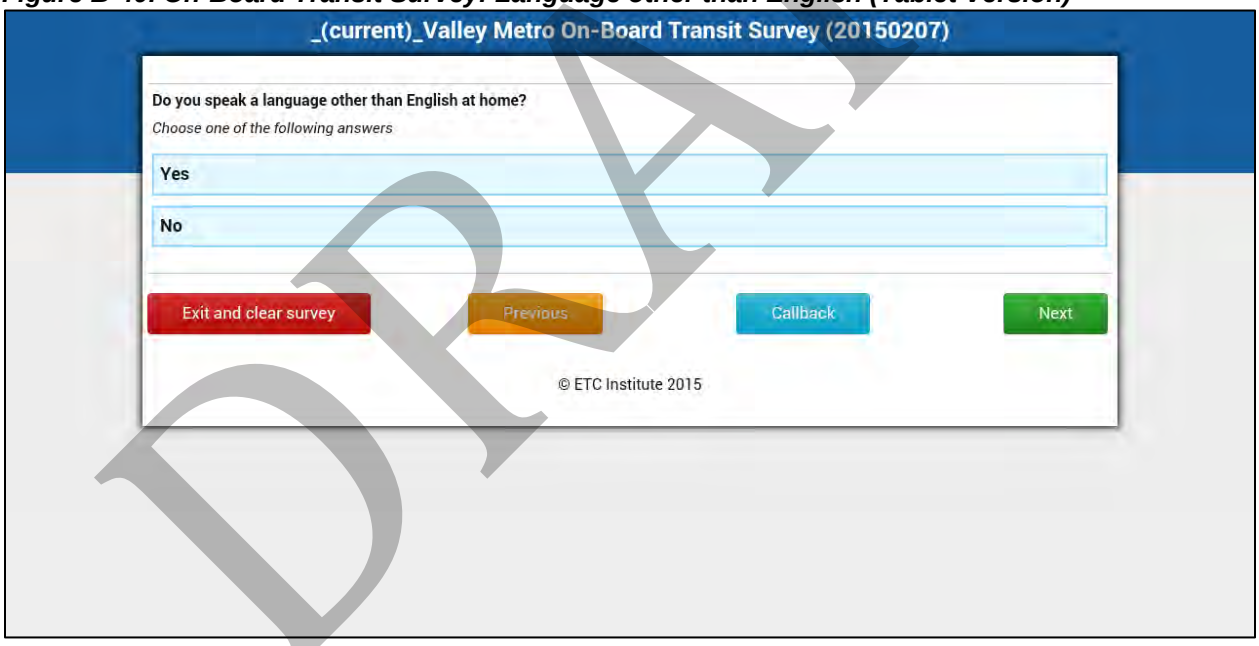

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Figure B-41. On-Board Transit Survey: Gender of Rider (Tablet Version)

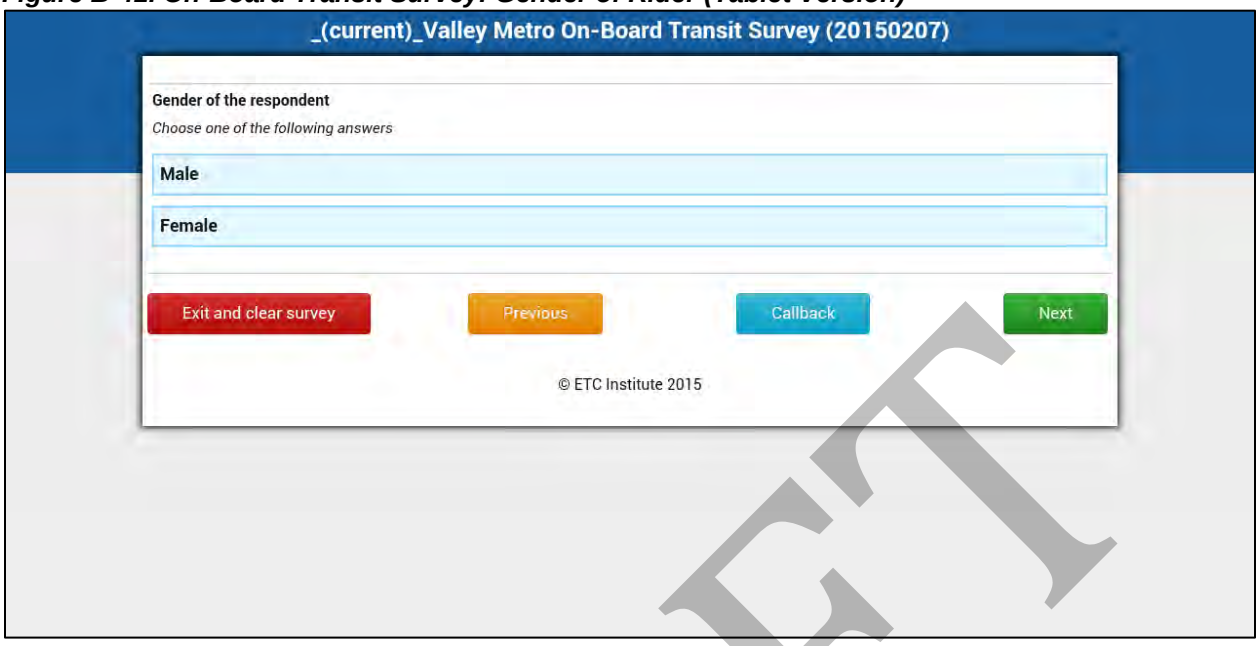

Figure B-42. On-Board Transit Survey: Incentive Question (Tablet Version)

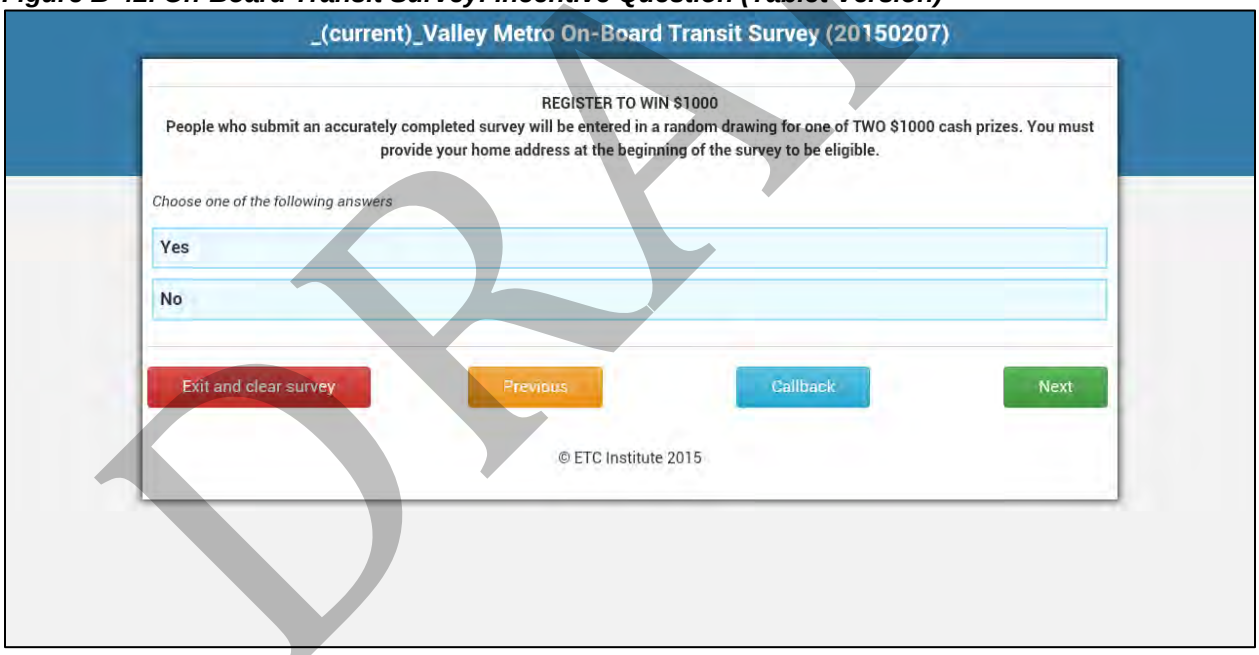

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Figure B-43. On-Board Transit Survey: Participation Info (Tablet Version)

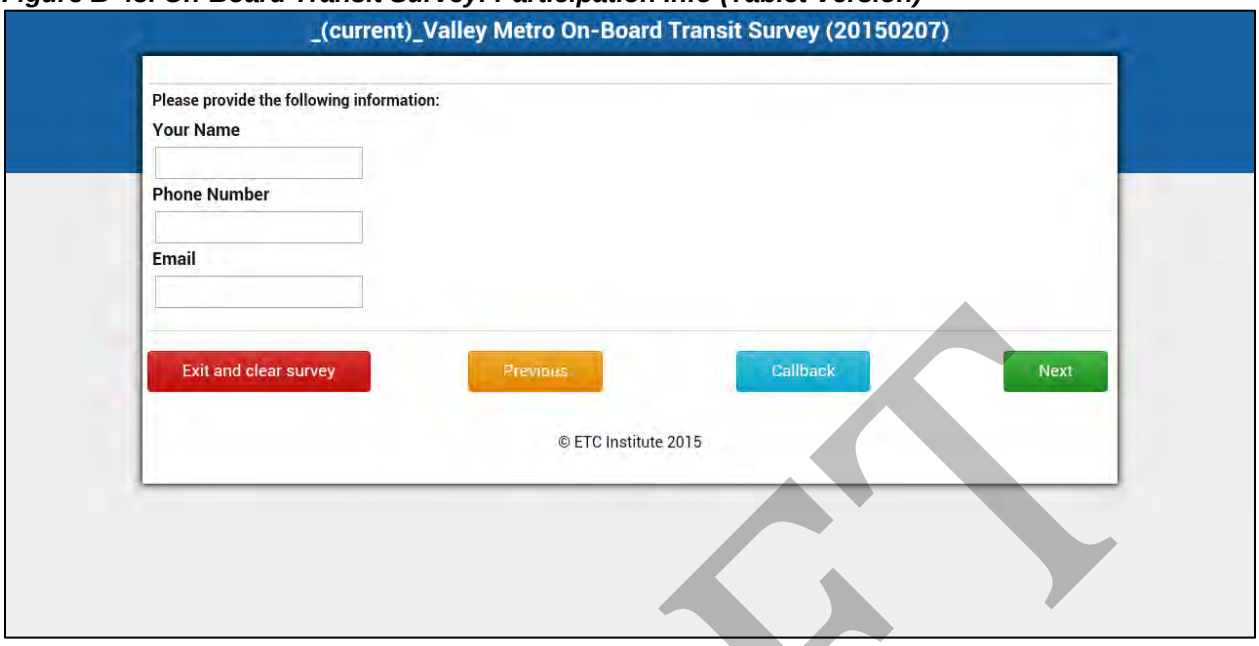
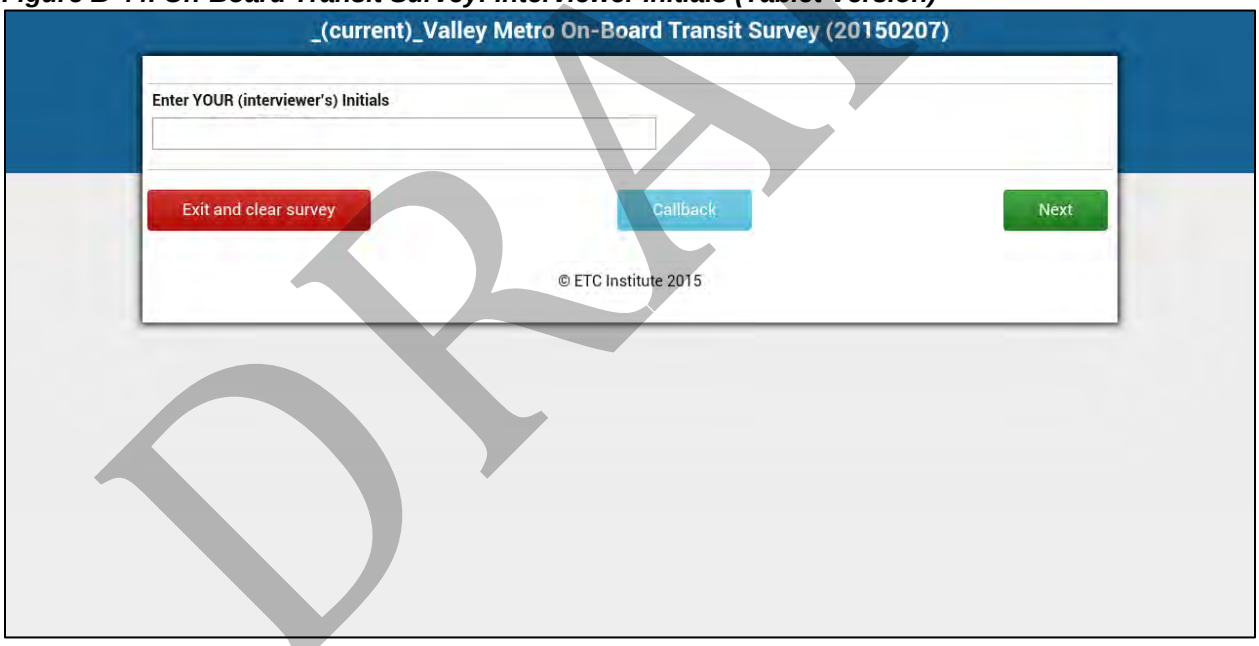


Figure B-44. On-Board Transit Survey: Interviewer Initials (Tablet Version)



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Appendix C: Results by Service Type (Bus Only vs. Light Rail Only vs. Bus/Light Rail vs. Sky Train Users)

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SERVICE TYPE OF TRAVEL

Bus Only: Riders that only used bus routes during their one-way trip.

Rail Only: Riders that only used the rail line during their one-way trip.

Bus/Rail: Riders that used bus routes and the rail line during their one-way trip.

Sky Train Users: Riders that reported using the Sky Train during their one-way trip.

Figure C- 1. Pass Type

Pass Type	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
All-Day pass	31.7%	35.5%	35.6%	49.6%	32.7%
7-Day Pass	5.4%	4.2%	5.6%	3.3%	5.3%
15-Day	3.7%	2.1%	4.8%	0.7%	3.6%
31-Day Pass	15.6%	11.8%	20.5%	15.9%	15.5%
Semester Pass	2.4%	1.9%	2.3%	0.0%	2.3%
Full Fare	11.0%	8.1%	5.2%	17.2%	10.0%
Employer Subsidized Pass (Platinum Pass)	8.7%	10.6%	9.2%	8.6%	9.0%
FREE	10.5%	1.4%	3.4%	0.3%	8.4%
ASU U-Pass	1.5%	17.8%	4.4%	1.5%	4.2%
Courtesy Pass	0.1%	0.4%	0.1%	0.0%	0.1%
Dial A Ride ID Card	0.0%	0.0%	0.0%	0.0%	0.0%
Field Trip Pass	0.0%	0.1%	0.1%	0.2%	0.0%
Person with Disability Fare	0.9%	0.6%	1.2%	0.1%	0.9%
Reduced Fare Card ID	5.8%	4.1%	6.3%	2.0%	5.6%
Youth Fare	1.8%	0.6%	1.0%	0.0%	1.6%
Senior Fare	0.9%	0.7%	0.5%	0.5%	0.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 2. How Transit Riders Get Transit Schedule Information

Source of Information	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Customer service	7.9%	4.4%	6.8%	2.4%	7.3%
Mobile site	20.2%	20.1%	23.7%	29.3%	20.6%
NextRide	9.0%	8.0%	8.5%	9.6%	8.8%
Posted schedule at bus stop	9.9%	22.1%	10.9%	19.8%	11.8%
Transit Book	23.1%	13.0%	21.8%	8.0%	21.5%
Valley Metro website	27.6%	28.5%	25.4%	28.5%	27.5%
Other	2.2%	3.8%	3.0%	2.4%	2.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 3. Number of Vehicles in the Household

Vehicles	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
None (0)	55.1%	45.8%	61.0%	50.3%	54.3%
One (1)	24.7%	31.9%	24.7%	24.3%	25.8%
Two (2)	14.5%	15.6%	9.9%	13.3%	14.2%
Three (3)	3.9%	4.6%	2.7%	11.0%	3.9%
Four or more (4+)	1.8%	2.2%	1.7%	1.1%	1.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 4. Vehicles Availability (Those with one or more vehicles in Household)

Vehicles Availability	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
No	65.6%	33.2%	61.1%	55.5%	59.6%
Yes	34.4%	66.8%	38.9%	44.5%	40.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure C- 5. Number of People Living in the Household

Persons	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
One (1)	21.7%	26.8%	28.3%	26.6%	23.1%
Two (2)	23.9%	30.8%	24.2%	30.6%	24.9%
Three (3)	19.3%	17.8%	17.2%	11.6%	18.8%
Four (4)	16.3%	13.2%	13.7%	12.8%	15.6%
Five (5)	9.2%	5.9%	8.3%	12.9%	8.7%
Six (6)	5.0%	2.9%	3.9%	3.3%	4.6%
Seven (7)	2.1%	1.2%	1.9%	1.2%	1.9%
Eight (8)	0.9%	0.6%	1.0%	0.6%	0.9%
Nine (9)	0.4%	0.1%	0.4%	0.0%	0.4%
Ten or More (10+)	1.1%	0.6%	1.0%	0.4%	1.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 6. Number of Adults in the Household

Persons	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
One (1)	27.9%	30.8%	34.7%	28.4%	29.1%
Two (2)	39.4%	40.4%	35.6%	41.3%	39.2%
Three (3)	19.8%	17.5%	17.8%	19.1%	19.2%
Four (4)	8.7%	8.3%	7.6%	8.7%	8.5%
Five (5)	2.4%	1.8%	2.3%	1.1%	2.3%
Six (6)	0.9%	0.6%	0.8%	0.7%	0.8%
Seven (7)	0.3%	0.3%	0.2%	0.0%	0.3%
Eight (8)	0.1%	0.1%	0.2%	0.4%	0.1%
Nine (9)	0.1%	0.0%	0.0%	0.0%	0.1%
Ten or More (10+)	0.5%	0.3%	0.8%	0.4%	0.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 7. Number of Employed Persons in the Household

Employed Persons	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
None (0)	11.7%	15.2%	14.5%	7.9%	12.5%
One (1)	36.5%	34.7%	39.7%	34.0%	36.6%
Two (2)	33.5%	33.8%	30.3%	36.6%	33.2%
Three (3)	12.3%	11.2%	9.9%	16.2%	11.9%
Four (4)	4.0%	4.0%	3.7%	3.7%	4.0%
Five (5)	1.0%	0.7%	1.0%	0.6%	1.0%
Six (6)	0.4%	0.2%	0.3%	0.6%	0.4%
Seven (7)	0.1%	0.1%	0.1%	0.0%	0.1%
Eight (8)	0.1%	0.1%	0.1%	0.0%	0.1%
Nine (9)	0.0%	0.0%	0.0%	0.0%	0.0%
Ten or More (10+)	0.4%	0.0%	0.3%	0.4%	0.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 8. Employment Status

Employment Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Employed full-time (at least 35 hrs per week)	53.7%	52.5%	56.4%	79.4%	53.9%
Employed part-time (less than 35 hrs per week)	14.7%	18.5%	13.3%	9.8%	15.1%
Not currently employed but seeking work	11.1%	10.1%	12.0%	1.3%	11.0%
Not currently employed and not seeking work	15.2%	12.9%	13.2%	4.8%	14.7%
Homemaker	0.6%	0.4%	0.4%	0.2%	0.6%
Retired	4.6%	5.7%	4.7%	4.6%	4.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 9. Student Status

Student Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Not a student	73.8%	63.8%	77.5%	90.0%	72.8%
Yes - Full Time college/university	11.2%	28.0%	12.2%	7.3%	13.8%
Yes - Part Time college/university	2.0%	2.7%	1.8%	0.7%	2.1%
Yes - vocational/technical/trade school	0.9%	0.4%	0.9%	0.0%	0.8%
Yes - K-12th grade	11.9%	5.2%	7.7%	2.1%	10.5%
Other	0.2%	0.0%	0.1%	0.0%	0.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 10. Driver's License Status

Driver's License Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
No	58.0%	33.5%	53.3%	26.6%	53.8%
Yes	42.0%	66.5%	46.7%	73.4%	46.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure C- 11. Veterans Status

Veteran Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
YES	5.6%	6.8%	8.0%	5.0%	6.0%
NO	93.7%	92.6%	91.8%	94.4%	93.4%
No answer	0.7%	0.6%	0.2%	0.6%	0.6%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 12. Visitor Status

Visitor Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
No	99.4%	94.9%	98.6%	83.5%	98.6%
Yes	0.6%	5.1%	1.4%	16.5%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 13. Disability Status

Disability Status	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Not disabled	89.1%	91.1%	86.8%	93.2%	89.2%
Blindness	0.3%	0.1%	0.2%	1.7%	0.2%
Deaf / Hard of hearing	0.5%	0.4%	0.4%	0.7%	0.5%
Declined to answer	1.0%	0.9%	1.3%	1.1%	1.0%
Low vision	1.1%	0.8%	1.6%	2.1%	1.1%
Mental or cognitive impairment	2.9%	2.4%	3.4%	0.6%	2.9%
Mobility problem - do not use wheelchair	2.8%	2.8%	3.8%	0.2%	2.9%
Mobility problem - use wheelchair	1.2%	0.7%	1.2%	0.3%	1.1%
Other	1.1%	0.6%	1.2%	0.0%	1.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 14. Age of Respondent

Age of Respondent	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Under 16	2.6%	1.5%	1.9%	0.0%	2.4%
16-18	12.3%	6.9%	8.4%	2.2%	11.1%
19-24	22.2%	30.3%	20.3%	19.3%	23.2%
25-34	22.0%	23.4%	23.0%	28.4%	22.4%
35-44	14.7%	14.1%	16.6%	17.9%	14.8%
45-54	13.4%	12.2%	16.3%	16.2%	13.5%
55-64	9.2%	8.0%	9.9%	10.4%	9.1%
65+	3.5%	3.8%	3.6%	5.6%	3.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 15. Race/Ethnicity of Respondent

Race/Ethnicity	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
American Indian / Alaska Native	4.2%	4.4%	7.7%	2.1%	4.6%
Asian	3.0%	5.7%	2.3%	2.5%	3.3%
Black / African American	19.7%	13.2%	21.3%	24.9%	18.9%
Hispanic / Latino	29.1%	20.2%	24.3%	13.4%	27.3%
Native Hawaiian / Pacific Islander	0.8%	0.7%	0.7%	0.7%	0.8%
White	41.7%	51.9%	41.4%	55.0%	43.2%
Other	1.6%	3.8%	2.2%	1.5%	2.0%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 16a. Annual Income Range

Annual Household Income	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Below $5,000	9.3%	9.2%	10.4%	4.1%	9.4%
$5,000-$9,999	3.7%	4.1%	4.3%	3.7%	3.8%
$10,000-$14,999	6.2%	5.9%	7.3%	5.7%	6.2%
$15,000-$19,999	8.0%	5.9%	6.4%	5.7%	7.6%
$20,000-$24,999	8.3%	6.3%	7.6%	6.9%	7.9%
$25,000-$29,999	8.0%	4.8%	8.7%	5.3%	7.6%
$30,000-$34,999	6.1%	6.1%	6.3%	6.3%	6.1%
$35,000-$39,999	4.6%	4.9%	4.7%	3.5%	4.7%
$40,000-$49,999	4.8%	5.2%	5.1%	5.5%	4.9%
$50,000-$59,999	3.2%	4.9%	3.6%	7.4%	3.5%
$60,000-$69,999	2.2%	3.1%	1.9%	6.3%	2.4%
$70,000-$79,999	1.5%	2.5%	2.1%	4.0%	1.7%
$80,000-$89,999	1.1%	2.0%	1.0%	1.6%	1.2%
$90,000-$99,999	0.5%	1.7%	0.6%	2.0%	0.7%
$100,000-$119,999	1.0%	2.5%	0.9%	1.4%	1.2%
$120,000 or more	1.0%	2.4%	1.1%	5.0%	1.2%
Refusal	30.5%	28.3%	28.0%	25.5%	29.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure C- 17b. Annual Income Range (Excluding Refusals)

Annual Household Income	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Below $5,000	13.3%	14.4%	12.9%	5.6%	13.3%
$5,000-$9,999	5.3%	6.0%	5.7%	5.0%	5.4%
$10,000-$14,999	8.9%	10.1%	8.2%	7.7%	8.9%
$15,000-$19,999	11.6%	8.9%	8.3%	7.6%	10.8%
$20,000-$24,999	11.9%	10.6%	8.8%	9.3%	11.3%
$25,000-$29,999	11.5%	12.0%	6.7%	7.1%	10.8%
$30,000-$34,999	8.7%	8.7%	8.5%	8.5%	8.7%
$35,000-$39,999	6.7%	6.6%	6.8%	4.6%	6.7%
$40,000-$49,999	6.9%	7.1%	7.3%	7.4%	7.0%
$50,000-$59,999	4.6%	5.1%	6.8%	10.0%	5.0%
$60,000-$69,999	3.2%	2.7%	4.4%	8.5%	3.4%
$70,000-$79,999	2.1%	2.9%	3.6%	5.3%	2.4%
$80,000-$89,999	1.6%	1.4%	2.8%	2.2%	1.8%
$90,000-$99,999	0.7%	0.9%	2.3%	2.6%	1.0%
$100,000-$119,999	1.4%	1.2%	3.6%	1.8%	1.7%
$120,000 or more	1.4%	1.5%	3.4%	6.7%	1.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 18. Speak a Language Other than English at Home

Language Other than English	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
No	76.0%	77.0%	77.0%	84.0%	76.3%
Yes	24.0%	23.0%	23.0%	16.0%	23.7%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 19. Other Language Spoken at Home (Top 10)

Other Language	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Spanish	78.8%	57.5%	74.0%	53.5%	75.2%
Navajo	2.6%	3.0%	4.7%	0.7%	2.9%
Other	2.6%	2.6%	3.6%	3.2%	2.7%
French	1.8%	3.2%	2.3%	13.2%	2.1%
Arabic, Standard	1.0%	6.3%	0.7%	4.0%	1.7%
German	1.4%	3.5%	1.5%	0.0%	1.7%
Hindi	1.4%	1.9%	1.5%	1.2%	1.5%
Chinese	0.9%	3.4%	0.5%	0.2%	1.2%
AMERICAN SIGN LANGUAGE (ASL)	1.1%	1.4%	1.2%	0.3%	1.2%
Chinese, Mandarin	0.8%	2.7%	1.1%	0.0%	1.1%

Figure C- 20. English Ability (Those that speak a language other than English)

English Ability	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Not at all	2.9%	0.5%	1.4%	1.8%	2.4%
Grand Total	7.1%	5.3%	2.1%	2.8%	6.3%
Well	13.0%	14.7%	12.1%	19.8%	13.2%
Very well	77.0%	79.5%	84.3%	75.7%	78.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 21. Gender of Respondent

Gender	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Female	45.2%	44.5%	42.3%	37.0%	44.8%
Male	54.8%	55.5%	57.7%	63.0%	55.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 22. Trip Purpose

Trip Purpose	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Home-Based Airport Trip	0.0%	0.4%	0.3%	34.1%	0.2%
Home-Based College Trip	7.6%	17.4%	6.6%	0.0%	8.9%
Home-Based Medical Trip	3.0%	1.4%	3.4%	0.0%	2.8%
Home-Based Other Trip	18.7%	18.5%	23.5%	5.7%	19.2%
Home-Based School Trip	9.6%	2.5%	6.0%	0.0%	8.2%
Home-Based Shopping Trip	9.7%	10.9%	6.7%	0.1%	9.5%
Home-Based Work Trip	40.8%	26.9%	40.4%	40.6%	38.8%
Non-Home Based Trip	10.5%	21.9%	13.1%	19.6%	12.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 23. Number of Transfers

Number of Transfers	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
None	68.7%	100.0%	0.0%	0.0%	65.9%
One	27.3%	0.0%	73.9%	67.9%	28.3%
Two	3.7%	0.0%	22.6%	26.6%	5.2%
Three or more	0.3%	0.0%	3.5%	5.6%	0.6%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure C- 24. Where Transit Trips Began

Origin Type	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Airport (as an air passenger)	0.0%	0.5%	0.2%	16.9%	0.2%
College/University (student only)	3.9%	10.4%	4.0%	0.0%	4.8%
Eating/Dining Out	1.1%	4.0%	1.1%	0.7%	1.5%
Hotel	0.1%	1.3%	0.4%	1.8%	0.3%
Medical appointment/doctor's visit	1.8%	1.3%	2.1%	0.6%	1.7%
Other work related	1.2%	2.4%	1.7%	2.1%	1.5%
Personal business (bank, post office, etc)	4.7%	5.8%	7.4%	0.4%	5.1%
Pick up/drop off someone (daycare, school, etc)	0.6%	0.3%	0.3%	1.3%	0.5%
Recreation (movies, fishing, etc)	1.3%	2.8%	2.2%	0.3%	1.6%
School (grades 6-8)	0.3%	0.0%	0.1%	0.0%	0.2%
School (grades 9-12)	4.9%	1.7%	3.7%	0.0%	4.3%
School (grades K-5)	0.1%	0.0%	0.0%	0.0%	0.1%
Shopping	6.4%	6.0%	4.6%	0.5%	6.2%
Sightseeing	0.1%	0.7%	0.3%	0.4%	0.2%
Social visits (friends/relatives)	5.0%	4.7%	6.8%	2.6%	5.1%
Sporting event	0.0%	0.1%	0.2%	0.0%	0.0%
Your Home	47.9%	40.8%	43.5%	50.7%	46.4%
Your usual WORKPLACE	20.7%	17.3%	21.4%	21.7%	20.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 25. Where Transit Trips End

Destination Type	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Airport (as an air passenger)	0.0%	0.5%	0.1%	30.3%	0.2%
College/University (student only)	4.8%	10.7%	4.0%	0.0%	5.5%
Eating/Dining Out	1.1%	4.7%	1.8%	0.4%	1.7%
Hotel	0.1%	0.9%	0.1%	3.8%	0.2%
Medical appointment/doctor's visit	2.1%	1.0%	2.3%	0.0%	2.0%
Other work related	1.5%	1.8%	1.9%	2.5%	1.6%
Personal business (bank, post office, etc)	6.7%	7.4%	8.0%	2.5%	7.0%
Pick up/drop off someone (daycare, school, etc)	0.8%	0.6%	0.3%	2.7%	0.7%
Recreation (movies, fishing, etc)	1.8%	5.3%	2.1%	1.2%	2.4%
School (grades 6-8)	0.2%	0.0%	0.0%	0.0%	0.2%
School (grades 9-12)	5.0%	1.7%	2.6%	0.0%	4.2%
School (grades K-5)	0.1%	0.0%	0.0%	0.0%	0.1%
Shopping	5.4%	5.9%	3.8%	0.0%	5.3%
Sightseeing	0.3%	1.0%	0.4%	0.8%	0.4%
Social visits (friends/relatives)	6.9%	6.4%	8.6%	1.5%	7.0%
Sporting event	0.1%	0.8%	0.3%	0.0%	0.2%
Your Home	41.7%	37.4%	43.4%	29.7%	41.2%
Your usual WORKPLACE	21.5%	13.9%	20.2%	24.6%	20.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 26. Access Mode to Transit System

Access Mode	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Walked all the way	89.2%	74.7%	90.3%	91.7%	87.2%
Walked part of the way (got dropped off and then walked)	0.4%	0.3%	0.4%	0.2%	0.4%
Bike	3.6%	9.5%	4.6%	0.2%	4.6%
Drove alone and parked	2.3%	7.5%	1.2%	3.2%	2.9%
Drove or rode with others and parked	0.1%	1.4%	0.1%	1.0%	0.3%
Was dropped off by someone	3.1%	5.4%	2.2%	3.7%	3.4%
Wheelchair/scooter	0.9%	0.6%	0.9%	0.0%	0.9%
Other	0.4%	0.5%	0.3%	0.0%	0.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 27. Access Mode to Transit System (Walk Distance)

Walk Distance	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Less than a block	49.6%	39.7%	47.2%	48.1%	48.1%
One (1)	20.9%	21.9%	21.7%	27.7%	21.1%
Two (2)	13.1%	17.5%	13.8%	13.2%	13.7%
Three (3)	6.4%	8.5%	7.4%	5.1%	6.7%
Four (4)	4.3%	5.5%	3.8%	2.3%	4.3%
Five (5)	2.3%	2.4%	1.6%	0.2%	2.2%
Six (6)	0.8%	1.1%	1.4%	1.6%	0.9%
Seven (7)	0.4%	1.2%	0.5%	0.1%	0.5%
Eight (8)	0.9%	0.9%	0.9%	0.5%	0.9%
Nine (9)	0.1%	0.4%	0.2%	0.4%	0.2%
Ten or more (10+)	1.2%	1.0%	1.5%	0.8%	1.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure C- 28. Egress Mode to Destination

Egress Mode	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Walk all the way	91.0%	76.3%	90.4%	91.5%	88.8%
Walk part of the way (will walk then get picked up)	0.3%	0.6%	0.5%	1.3%	0.3%
Bike	3.7%	10.0%	4.7%	0.2%	4.7%
Get in a parked vehicle & drive alone	2.1%	7.7%	1.2%	1.2%	2.8%
Get in a parked vehicle & drive/ride with others	0.1%	0.7%	0.1%	0.7%	0.2%
Be picked up by someone	1.6%	3.6%	1.8%	5.2%	1.9%
Wheelchair/scooter	1.0%	0.6%	1.0%	0.0%	0.9%
Other	0.4%	0.5%	0.3%	0.0%	0.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

Figure C- 29. Egress Mode to Destination (Walk Distance)

Walk Distance	BUS ONLY	RAIL ONLY	BUS/RAIL	SKY TRAIN USERS	GRAND TOTAL
Less than a block	48.9%	37.7%	43.1%	58.0%	46.9%
One (1)	21.0%	21.6%	22.1%	19.8%	21.2%
Two (2)	14.2%	16.0%	15.6%	8.8%	14.6%
Three (3)	6.7%	11.2%	7.7%	6.8%	7.4%
Four (4)	4.0%	5.6%	5.0%	0.5%	4.3%
Five (5)	1.9%	3.0%	2.1%	2.0%	2.0%
Six (6)	1.0%	1.4%	0.9%	3.0%	1.0%
Seven (7)	0.6%	1.0%	0.9%	0.4%	0.6%
Eight (8)	0.8%	1.1%	1.1%	0.3%	0.8%
Nine (9)	0.2%	0.3%	0.3%	0.0%	0.2%
Ten or more (10+)	0.8%	1.3%	1.2%	0.4%	0.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%

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Appendix D: Results by Type of Mode (Local, Express, Circulator, etc.)

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TYPE OF MODE

Circulator: Bus serving an area confined to a specific locale, such as a downtown area or suburban neighborhood with connections to major traffic corridors

Express: Bus that operates a portion of the route without stops or with a limited number of stops.

Limited: Bus service that operates with less number of stops compared to Local/Fixed routes.

Local: Service provided on a repetitive, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations.

Rail: An electric railway which operates at a higher capacity and often on an exclusive right-of-way.

Rapid: Hybrid between bus and rail which aims to combine the capacity and speed of rail with the flexibility, lower cost and simplicity of a bus system.

Route Name	Circulator	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Route Name	Circulator	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID
0					X			128					X		
1					X			136					X		
3					X			138					X		
7					X			154					X		
8					X			156					X		
10					X			170					X		
12					X			184					X		
13					X			186					X		
15					X			251					X		
16					X			514		X					
17					X			520		X					
19					X			521		X					
27					X			522		X					
28					X			531		X					
29					X			533		X					
30					X			535		X					
35					X			541		X					
39					X			542		X					
40					X			562		X					
41					X			563		X					
43					X			571		X					
44					X			573		X					
45					X			575		X					
48					X			19C					X		
50					X			ALEX	X						
51					X			BUZZ	X						
52					X			CSM							X
56					X			DASH	X						
59					X			EARTH	X						
60					X			FLASA	X						
61					X			FLASH	X						
62					X			GAL			X				
65					X			GUS	X						
66					X			I10E							X
67					X			I10W							X
70					X			I17							X
72					X			JUPITER	X						
75					X			LINKAZ				X			
77					X			MAIN				X			
80					X			MARS	X						
81					X			MARY	X						
83					X			MERCURY	X						
90					X			METRORAIL						X	
96					X			SCDT							X
104					X			SCNT	X						
106					X			SCTMT	X						
108					X			SMART	X						
112					X			SR51							X
120					X			VENUS	X						
122					X			ZOOM	X						

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Figure D- 1. Pass Type

Pass Type	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
All-Day pass	3.6%	4.7%	0.0%	43.6%	36.4%	36.8%	3.6%	32.7%
7-Day Pass	0.7%	0.0%	0.0%	5.6%	6.3%	4.4%	0.2%	5.3%
15-Day	0.5%	0.0%	0.0%	3.9%	4.4%	2.7%	0.0%	3.6%
31-Day Pass	2.2%	15.3%	12.5%	26.3%	17.6%	13.6%	16.1%	15.5%
Semester Pass	0.2%	0.0%	0.0%	1.4%	2.8%	2.0%	0.0%	2.3%
Full Fare	6.5%	1.6%	0.0%	9.7%	11.5%	7.8%	4.0%	10.0%
Employer Subsidized Pass (Platinum Pass)	0.7%	71.4%	76.3%	3.1%	6.7%	10.3%	67.0%	9.0%
FREE	83.1%	2.9%	0.0%	0.8%	1.6%	1.2%	7.2%	8.4%
ASU U-Pass	0.8%	2.8%	0.0%	1.3%	1.8%	14.0%	1.9%	4.2%
Courtesy Pass	0.0%	0.2%	0.0%	0.0%	0.1%	0.3%	0.2%	0.1%
Dial A Ride ID Card	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Field Trip Pass	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Person with Disability Fare	0.5%	0.0%	0.0%	1.3%	1.0%	0.8%	0.0%	0.9%
Reduced Fare Card ID	0.3%	0.6%	11.2%	3.0%	6.8%	4.7%	0.0%	5.6%
Youth Fare	0.3%	0.0%	0.0%	0.0%	2.1%	0.7%	0.0%	1.6%
Senior Fare	0.6%	0.0%	0.0%	0.0%	1.0%	0.7%	0.0%	0.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 2. How Transit Riders Get Transit Schedule Information

Source of Information	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Customer service	7.4%	0.5%	5.6%	9.1%	8.2%	4.9%	1.6%	7.3%
Mobile site	18.6%	12.3%	0.0%	31.8%	21.3%	20.6%	4.5%	20.6%
NextRide	10.0%	1.1%	0.0%	11.2%	9.3%	7.9%	0.4%	8.8%
Posted schedule at bus stop	19.6%	0.2%	0.0%	13.8%	8.9%	19.9%	4.6%	11.8%
Transit Book	14.2%	9.8%	26.3%	16.5%	25.0%	15.2%	9.0%	21.5%
Valley Metro website	26.3%	75.7%	68.1%	17.5%	25.2%	27.8%	79.8%	27.5%
Other	3.9%	0.4%	0.0%	0.0%	2.2%	3.7%	0.2%	2.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 3. Number of Vehicles in the Household

Vehicles	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
None (0)	54.1%	2.1%	0.0%	61.2%	58.4%	49.0%	6.0%	54.3%
One (1)	27.1%	30.0%	43.1%	18.6%	24.1%	30.5%	28.3%	25.8%
Two (2)	14.4%	44.9%	44.4%	10.5%	12.5%	14.1%	50.0%	14.2%
Three (3)	3.0%	17.3%	6.9%	6.1%	3.2%	4.4%	12.7%	3.9%
Four or more (4+)	1.4%	5.6%	5.6%	3.7%	1.7%	2.0%	2.9%	1.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 4. Vehicle Availability (Those with one or more vehicles in Household)

Vehicles Availability	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
No	54.0%	5.9%	12.5%	76.2%	74.4%	38.2%	5.0%	59.6%
Yes	46.0%	94.1%	87.5%	23.8%	25.6%	61.8%	95.0%	40.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 5. Number of People Living in the Household

Persons	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
One (1)	23.5%	15.1%	6.9%	30.1%	22.4%	26.3%	18.1%	23.1%
Two (2)	25.9%	31.3%	37.5%	20.8%	22.8%	29.6%	40.5%	24.9%
Three (3)	19.4%	23.6%	25.0%	15.2%	19.2%	17.7%	15.7%	18.8%
Four (4)	16.7%	21.6%	12.5%	17.2%	16.0%	13.2%	17.3%	15.6%
Five (5)	7.4%	6.2%	12.5%	6.2%	9.6%	6.8%	5.1%	8.7%
Six (6)	4.4%	0.9%	5.6%	5.1%	5.2%	3.2%	3.1%	4.6%
Seven (7)	1.3%	0.0%	0.0%	3.4%	2.2%	1.4%	0.0%	1.9%
Eight (8)	0.4%	0.8%	0.0%	0.5%	1.0%	0.7%	0.1%	0.9%
Nine (9)	0.2%	0.0%	0.0%	0.8%	0.4%	0.2%	0.1%	0.4%
Ten or More (10+)	0.8%	0.3%	0.0%	0.6%	1.2%	0.8%	0.0%	1.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure D- 6. Number of Adults Living in the Household

Persons	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
One (1)	28.5%	18.3%	12.5%	31.2%	29.1%	30.9%	18.8%	29.1%
Two (2)	39.2%	51.9%	48.7%	33.8%	38.2%	40.1%	55.4%	39.2%
Three (3)	18.3%	19.7%	26.3%	19.0%	19.9%	17.5%	18.5%	19.2%
Four (4)	10.2%	9.8%	12.5%	9.2%	8.4%	8.1%	6.4%	8.5%
Five (5)	2.5%	0.4%	0.0%	4.7%	2.4%	2.0%	0.3%	2.3%
Six (6)	0.7%	0.0%	0.0%	1.5%	0.9%	0.6%	0.6%	0.8%
Seven (7)	0.3%	0.0%	0.0%	0.0%	0.3%	0.2%	0.0%	0.3%
Eight (8)	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%	0.0%	0.1%
Nine (9)	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Ten or More (10+)	0.3%	0.0%	0.0%	0.6%	0.6%	0.5%	0.0%	0.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 7. Number of Employed Persons in the Household

Employed Persons	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
None (0)	21.4%	0.5%	0.0%	12.1%	11.2%	14.9%	1.8%	12.5%
One (1)	28.9%	47.2%	38.8%	35.1%	37.4%	35.4%	44.2%	36.6%
Two (2)	32.0%	38.8%	48.7%	31.1%	33.1%	33.3%	38.5%	33.2%
Three (3)	11.9%	11.2%	12.5%	15.5%	12.1%	11.1%	13.7%	11.9%
Four (4)	4.2%	2.3%	0.0%	4.4%	4.1%	3.9%	1.5%	4.0%
Five (5)	1.2%	0.0%	0.0%	0.9%	1.0%	0.8%	0.3%	1.0%
Six (6)	0.1%	0.0%	0.0%	0.7%	0.4%	0.2%	0.0%	0.4%
Seven (7)	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%
Eight (8)	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%
Nine (9)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Ten or More (10+)	0.1%	0.0%	0.0%	0.0%	0.4%	0.1%	0.0%	0.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 8. Employment Status

Employment Status	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Employed full-time (at least 35 hrs per week)	36.7%	98.8%	86.2%	57.5%	53.9%	53.5%	95.4%	53.9%
Employed part-time (less than 35 hrs per week)	21.5%	0.2%	13.8%	17.7%	14.4%	17.1%	1.9%	15.1%
Not currently employed but seeking work	14.5%	0.5%	0.0%	8.1%	11.3%	10.7%	0.3%	11.0%
Not currently employed and not seeking work	19.9%	0.4%	0.0%	13.2%	15.3%	13.0%	0.2%	14.7%
Homemaker	1.5%	0.0%	0.0%	0.0%	0.5%	0.4%	0.3%	0.6%
Retired	5.8%	0.0%	0.0%	3.6%	4.7%	5.3%	1.9%	4.8%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 9. Student Status

Student Status	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Not a student	58.3%	98.2%	100.0%	83.7%	74.8%	67.7%	93.2%	72.8%
Yes - Full Time college/university	28.5%	0.4%	0.0%	6.1%	9.8%	23.3%	3.4%	13.8%
Yes - Part Time college/university	2.1%	1.5%	0.0%	1.0%	1.9%	2.5%	3.2%	2.1%
Yes - vocational/technical/trade school	0.4%	0.0%	0.0%	0.2%	1.0%	0.5%	0.2%	0.8%
Yes - K-12th grade	10.7%	0.0%	0.0%	9.0%	12.4%	5.9%	0.1%	10.5%
Other	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 10. Driver's License Status

Driver's License Status	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
No	53.0%	1.8%	11.2%	55.3%	61.1%	38.3%	4.7%	53.8%
Yes	47.0%	98.2%	88.8%	44.7%	38.9%	61.7%	95.3%	46.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 11. Veterans Status

Veteran Status	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
YES	4.1%	7.7%	0.0%	7.9%	5.8%	7.1%	8.8%	6.0%
NO	95.6%	92.3%	100.0%	91.3%	93.5%	92.5%	91.2%	93.4%
No answer	0.3%	0.0%	0.0%	0.8%	0.7%	0.5%	0.0%	0.6%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 12. Visitors Status

Visitor Status	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
No	99.0%	100.0%	100.0%	99.9%	99.4%	95.6%	98.0%	98.6%
Yes	1.0%	0.0%	0.0%	0.1%	0.6%	4.4%	2.0%	1.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure D- 13. Disability Status

Disability Status	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Not disabled	89.5%	96.4%	93.1%	79.4%	88.7%	90.0%	95.1%	89.2%
Blindness	0.3%	0.0%	0.0%	0.0%	0.3%	0.2%	0.0%	0.2%
Deaf / Hard of hearing	0.1%	0.7%	0.0%	3.6%	0.5%	0.5%	0.7%	0.5%
Declined to answer	1.1%	1.1%	6.9%	1.7%	1.0%	1.0%	0.9%	1.0%
Low vision	1.3%	0.4%	0.0%	3.5%	1.2%	1.0%	0.1%	1.1%
Mental or cognitive impairment	3.0%	0.0%	0.0%	4.6%	3.0%	2.9%	0.4%	2.9%
Mobility problem - do not use wheelchair	2.4%	0.7%	0.0%	5.6%	3.0%	2.9%	1.5%	2.9%
Mobility problem - use wheelchair	0.7%	0.0%	0.0%	1.3%	1.2%	0.8%	1.2%	1.1%
Other	1.6%	0.7%	0.0%	0.3%	1.1%	0.8%	0.2%	1.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 14. Age of Respondent

Age of Respondent	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Under 16	2.6%	0.0%	0.0%	0.3%	2.8%	1.5%	0.1%	2.4%
16-18	10.6%	0.0%	0.0%	6.7%	12.8%	7.5%	0.2%	11.1%
19-24	33.4%	1.8%	6.9%	15.9%	21.6%	27.6%	5.3%	23.2%
25-34	20.8%	14.2%	11.2%	30.4%	22.6%	23.6%	8.0%	22.4%
35-44	12.6%	30.0%	11.2%	15.1%	14.7%	14.7%	19.1%	14.8%
45-54	8.4%	23.8%	30.6%	13.7%	13.7%	13.0%	29.3%	13.5%
55-64	7.7%	25.1%	33.2%	14.5%	8.4%	8.4%	31.8%	9.1%
65+	3.9%	5.2%	6.9%	3.5%	3.3%	3.7%	6.3%	3.5%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 15. Race/Ethnicity of Respondent

Race/Ethnicity	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
American Indian / Alaska Native	4.9%	2.6%	0.0%	2.2%	4.6%	5.3%	0.9%	4.6%
Asian	6.2%	5.8%	6.9%	2.6%	2.4%	4.7%	4.6%	3.3%
Black / African American	17.4%	8.2%	5.6%	20.0%	20.8%	15.4%	6.1%	18.9%
Hispanic / Latino	22.6%	14.6%	25.0%	22.7%	30.3%	21.4%	16.2%	27.3%
Native Hawaiian / Pacific Islander	1.1%	0.0%	0.0%	0.0%	0.8%	0.7%	0.1%	0.8%
White	44.8%	67.9%	62.5%	50.8%	39.7%	49.0%	71.3%	43.2%
Other	3.0%	0.9%	0.0%	1.7%	1.4%	3.5%	0.7%	2.0%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 16. Annual Household Income

Annual Household Income	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Below $5,000	15.2%	0.3%	0.0%	5.9%	9.0%	9.8%	0.2%	9.4%
$5,000-$9,999	4.0%	0.0%	0.0%	7.9%	3.7%	4.3%	1.4%	3.8%
$10,000-$14,999	5.2%	0.0%	0.0%	10.9%	6.7%	6.0%	0.8%	6.2%
$15,000-$19,999	7.1%	0.0%	0.0%	7.5%	8.5%	6.1%	0.2%	7.6%
$20,000-$24,999	7.8%	2.2%	6.9%	9.9%	8.6%	6.6%	1.3%	7.9%
$25,000-$29,999	8.1%	0.7%	5.6%	14.1%	8.3%	5.5%	4.4%	7.6%
$30,000-$34,999	4.1%	2.2%	0.0%	7.3%	6.5%	6.1%	2.3%	6.1%
$35,000-$39,999	4.1%	4.7%	31.9%	1.7%	4.6%	4.9%	7.7%	4.7%
$40,000-$49,999	3.6%	10.4%	13.8%	4.1%	4.7%	5.3%	9.6%	4.9%
$50,000-$59,999	2.8%	11.3%	0.0%	4.1%	2.8%	4.4%	13.3%	3.5%
$60,000-$69,999	2.3%	7.0%	6.9%	6.3%	1.8%	3.0%	7.8%	2.4%
$70,000-$79,999	0.6%	10.4%	5.6%	3.7%	1.2%	2.4%	8.4%	1.7%
$80,000-$89,999	0.6%	11.3%	0.0%	1.6%	0.8%	1.8%	6.0%	1.2%
$90,000-$99,999	0.0%	4.8%	0.0%	0.8%	0.3%	1.4%	6.8%	0.7%
$100,000-$119,999	0.4%	9.4%	12.5%	0.1%	0.7%	2.2%	7.8%	1.2%
120,000 or more	0.1%	13.0%	5.6%	0.5%	0.6%	2.1%	10.5%	1.2%
Refusal	33.9%	12.4%	11.2%	13.5%	31.2%	28.1%	11.3%	29.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 17. Speak a Language Other than English at Home

Language Other than English	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
No	75.3%	86.0%	93.1%	81.1%	75.8%	76.6%	84.8%	76.3%
Yes	24.7%	14.0%	6.9%	18.9%	24.2%	23.4%	15.2%	23.7%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure D- 18. Other Language Spoken at Home (Top 10)

Other Language	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Spanish	63.2%	63.8%	100.0%	66.6%	81.0%	61.9%	69.0%	75.2%
Navajo	4.4%	2.7%	0.0%	5.9%	2.5%	3.4%	1.8%	2.9%
Other	2.3%	4.3%	0.0%	0.0%	2.7%	2.9%	6.8%	2.7%
French	2.1%	1.4%	0.0%	1.9%	1.8%	3.1%	0.0%	2.1%
Arabic, Standard	3.8%	1.4%	0.0%	0.0%	0.6%	4.8%	0.0%	1.7%
German	1.2%	0.8%	0.0%	0.0%	1.5%	2.9%	0.5%	1.7%
Hindi	5.3%	1.7%	0.0%	0.0%	0.8%	1.7%	5.5%	1.5%
Chinese	2.8%	4.8%	0.0%	2.7%	0.6%	2.5%	1.0%	1.2%
AMERICAN SIGN LANGUAGE (ASL)	0.4%	0.0%	0.0%	1.4%	1.2%	1.4%	2.4%	1.2%
Chinese, Mandarin	4.2%	0.0%	0.0%	0.0%	0.4%	2.1%	3.6%	1.1%

Figure D- 19. English Ability (Those that speak a language other than English)

English Ability	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Not at all	2.8%	0.0%	0.0%	0.0%	2.9%	1.0%	1.0%	2.4%
Less than well	6.4%	0.0%	0.0%	7.4%	7.0%	4.7%	0.0%	6.3%
Well	21.8%	24.2%	0.0%	12.8%	11.8%	14.0%	10.1%	13.2%
Very well	69.0%	75.8%	100.0%	79.9%	78.4%	80.4%	88.9%	78.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 20. Gender of Respondent

Gender	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Female	45.8%	58.2%	76.3%	34.3%	44.0%	44.6%	64.3%	44.8%
Male	54.2%	41.8%	23.7%	65.7%	56.0%	55.4%	35.7%	55.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 21. Trip Purpose

Trip Purpose	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Home-Based Airport Trip	0.0%	0.0%	0.0%	0.3%	0.1%	0.8%	0.0%	0.2%
Home-Based College Trip	21.6%	0.6%	0.0%	2.6%	6.3%	14.1%	0.0%	8.9%
Home-Based Medical Trip	2.2%	0.0%	0.0%	2.1%	3.3%	1.9%	0.0%	2.8%
Home-Based Other Trip	22.7%	0.2%	0.0%	21.9%	19.3%	20.2%	0.9%	19.2%
Home-Based School Trip	6.4%	0.0%	0.0%	4.5%	10.3%	3.4%	0.0%	8.2%
Home-Based Shopping Trip	13.1%	0.2%	0.0%	7.6%	9.4%	10.0%	2.3%	9.5%
Home-Based Work Trip	21.5%	98.7%	100.0%	46.2%	40.5%	29.9%	92.8%	38.8%
Non-Home Based Trip	12.6%	0.3%	0.0%	14.8%	10.7%	19.7%	4.1%	12.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 22. Total Transfers Used

Number of Transfers	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
None	84.0%	96.4%	100.0%	52.0%	60.4%	72.4%	92.8%	65.9%
One	12.8%	3.6%	0.0%	36.3%	33.3%	21.6%	6.9%	28.3%
Two	2.9%	0.0%	0.0%	9.3%	5.6%	5.2%	0.2%	5.2%
Three or more	0.3%	0.0%	0.0%	2.4%	0.6%	0.8%	0.1%	0.6%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 23. Where Transit Trips Began

Origin Type	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Airport (as an air passenger)	0.0%	0.0%	0.0%	0.9%	0.0%	0.6%	0.0%	0.2%
College/University (student only)	11.9%	0.6%	0.0%	1.0%	3.2%	8.3%	0.0%	4.8%
Eating/Dining Out	2.2%	0.2%	0.0%	4.0%	0.9%	3.3%	0.4%	1.5%
Hotel	0.2%	0.0%	0.0%	0.0%	0.1%	1.1%	0.2%	0.3%
Medical appointment/doctor's visit	0.9%	0.0%	0.0%	1.9%	2.0%	1.5%	0.0%	1.7%
Other work related	0.7%	0.8%	0.0%	2.2%	1.4%	2.2%	0.1%	1.5%
Personal business (bank, post office, etc)	5.6%	0.0%	0.0%	5.2%	4.9%	6.4%	0.3%	5.1%
Pick up/drop off someone (daycare, school, etc)	0.6%	0.0%	0.0%	0.0%	0.6%	0.4%	0.7%	0.5%
Recreation (movies, fishing, etc)	3.8%	0.0%	0.0%	1.7%	1.1%	2.7%	0.5%	1.6%
School (grades 6-8)	0.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.2%
School (grades 9-12)	3.2%	0.0%	0.0%	1.7%	5.3%	2.1%	0.0%	4.3%
School (grades K-5)	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Shopping	7.2%	0.0%	0.0%	3.5%	6.5%	5.7%	2.1%	6.2%
Sightseeing	0.1%	0.0%	0.0%	0.0%	0.1%	0.6%	0.0%	0.2%
Social visits (friends/relatives)	3.7%	0.0%	0.0%	7.8%	5.5%	5.3%	0.2%	5.1%
Sporting event	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%
Your Home	47.6%	48.5%	55.2%	33.5%	47.8%	41.1%	53.3%	46.4%
Your usual WORKPLACE	11.7%	50.0%	44.8%	36.6%	20.3%	18.5%	42.3%	20.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure D- 24. Where Transit Trips End

Destination Type	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Airport (as an air passenger)	0.0%	0.0%	0.0%	0.0%	0.1%	0.8%	0.0%	0.2%
College/University (student only)	12.6%	0.0%	0.0%	1.6%	4.0%	8.8%	0.0%	5.5%
Eating/Dining Out	1.6%	0.0%	0.0%	1.4%	1.1%	3.9%	0.2%	1.7%
Hotel	0.0%	0.0%	0.0%	0.0%	0.1%	0.8%	0.2%	0.2%
Medical appointment/doctor's visit	1.8%	0.0%	0.0%	0.9%	2.3%	1.3%	0.0%	2.0%
Other work related	1.3%	0.0%	0.0%	0.3%	1.6%	1.8%	0.0%	1.6%
Personal business (bank, post office, etc)	10.0%	0.0%	0.0%	8.9%	6.7%	7.7%	0.2%	7.0%
Pick up/drop off someone (daycare, school, etc)	0.8%	0.0%	0.0%	0.5%	0.8%	0.5%	0.2%	0.7%
Recreation (movies, fishing, etc)	4.2%	0.3%	0.0%	3.2%	1.6%	4.4%	1.5%	2.4%
School (grades 6-8)	0.2%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%
School (grades 9-12)	3.3%	0.0%	0.0%	3.4%	5.3%	1.9%	0.0%	4.2%
School (grades K-5)	0.3%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
Shopping	6.2%	0.0%	0.0%	4.2%	5.4%	5.4%	2.2%	5.3%
Sightseeing	0.7%	0.2%	0.0%	0.0%	0.2%	0.9%	0.7%	0.4%
Social visits (friends/relatives)	5.5%	0.0%	0.0%	7.6%	7.5%	6.8%	0.2%	7.0%
Sporting event	0.1%	0.0%	0.0%	0.1%	0.1%	0.6%	0.0%	0.2%
Your Home	39.8%	51.2%	44.8%	51.7%	41.5%	39.2%	42.6%	41.2%
Your usual WORKPLACE	11.7%	48.3%	55.2%	16.1%	21.4%	15.1%	52.2%	20.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 25. Access Mode to Transit System

Access Mode	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Walked all the way	90.2%	58.6%	44.8%	81.9%	91.2%	78.8%	48.3%	87.2%
Walked part of the way (got dropped off and then walked)	1.3%	0.2%	0.0%	0.0%	0.2%	0.3%	1.2%	0.4%
Bike	2.6%	0.2%	6.9%	10.4%	3.8%	8.3%	1.0%	4.6%
Drove alone and parked	2.9%	34.8%	20.7%	0.7%	0.3%	5.8%	41.8%	2.9%
Drove or rode with others and parked	0.1%	1.6%	6.9%	0.0%	0.1%	1.1%	1.6%	0.3%
Was dropped off by someone	2.0%	4.6%	20.7%	7.0%	3.0%	4.5%	6.0%	3.4%
Wheelchair/scooter	0.5%	0.0%	0.0%	0.0%	1.0%	0.7%	0.2%	0.9%
Other	0.4%	0.0%	0.0%	0.0%	0.4%	0.5%	0.0%	0.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 26. Access Mode to Transit System (Walk Distance)

Walk Distance	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Less than a block	58.8%	15.2%	37.5%	41.5%	49.5%	41.3%	21.6%	48.1%
One (1)	19.4%	43.1%	37.5%	29.5%	20.5%	21.6%	40.4%	21.1%
Two (2)	9.8%	20.2%	25.0%	11.1%	13.2%	16.7%	25.9%	13.7%
Three (3)	4.9%	8.9%	0.0%	9.4%	6.5%	8.4%	7.2%	6.7%
Four (4)	2.6%	6.7%	0.0%	3.8%	4.4%	4.9%	1.2%	4.3%
Five (5)	0.8%	3.9%	0.0%	1.0%	2.3%	2.3%	2.6%	2.2%
Six (6)	0.7%	1.6%	0.0%	0.8%	0.9%	1.2%	0.3%	0.9%
Seven (7)	0.2%	0.0%	0.0%	0.0%	0.4%	1.0%	0.0%	0.5%
Eight (8)	1.2%	0.0%	0.0%	1.6%	0.9%	0.9%	0.0%	0.9%
Nine (9)	0.2%	0.0%	0.0%	0.0%	0.1%	0.4%	0.0%	0.2%
Ten or more (10+)	1.3%	0.4%	0.0%	1.4%	1.2%	1.4%	0.8%	1.2%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure D- 27. Egress Mode from Transit System

Egress Mode	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Walk all the way	93.0%	51.4%	53.9%	84.1%	92.7%	80.1%	57.9%	88.8%
Walk part of the way (will walk then get picked up)	0.7%	0.5%	0.0%	0.0%	0.2%	0.6%	0.0%	0.3%
Bike	2.4%	0.4%	6.9%	12.5%	3.9%	8.5%	0.5%	4.7%
Get in a parked vehicle & drive alone	2.9%	37.2%	22.4%	1.0%	0.2%	6.0%	35.3%	2.8%
Get in a parked vehicle & drive/ride with others	0.0%	1.9%	11.2%	0.0%	0.1%	0.6%	0.5%	0.2%
Be picked up by someone	0.2%	8.6%	5.6%	2.4%	1.5%	3.1%	5.6%	1.9%
Wheelchair/scooter	0.5%	0.0%	0.0%	0.0%	1.1%	0.7%	0.2%	0.9%
Other	0.4%	0.0%	0.0%	0.0%	0.4%	0.5%	0.0%	0.4%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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Figure D- 28. Egress Mode from Transit System (Walk Distance)

Walk Distance	CIRCULATOR	EXPRESS	LIMITED	LINK	LOCAL	RAIL	RAPID	Grand Total
Less than a block	60.3%	19.4%	51.2%	34.9%	48.3%	39.0%	17.0%	46.9%
One (1)	20.6%	39.5%	38.4%	23.5%	20.6%	21.6%	38.4%	21.2%
Two (2)	8.7%	22.6%	0.0%	13.4%	14.6%	15.9%	28.4%	14.6%
Three (3)	5.1%	4.8%	0.0%	5.2%	6.9%	10.3%	9.0%	7.4%
Four (4)	2.0%	6.1%	0.0%	8.6%	4.1%	5.7%	3.6%	4.3%
Five (5)	1.1%	3.3%	0.0%	3.3%	1.9%	2.8%	1.0%	2.0%
Six (6)	0.8%	2.5%	0.0%	2.0%	1.0%	1.2%	1.5%	1.0%
Seven (7)	0.2%	0.4%	0.0%	1.5%	0.6%	1.0%	0.0%	0.6%
Eight (8)	0.5%	0.0%	0.0%	3.6%	0.8%	1.0%	0.4%	0.8%
Nine (9)	0.0%	1.0%	10.4%	2.3%	0.2%	0.3%	0.0%	0.2%
Ten or more (10+)	0.7%	0.6%	0.0%	1.6%	0.9%	1.3%	0.7%	0.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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Appendix E: Results by Mode (Bus Riders & Rail Riders)

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SERVICE TYPE OF TRAVEL

Bus Riders: Riders that only used bus routes only during their one-way trip.

Rail Riders: Riders that used at least the rail line during their one-way trip.

Figure E- 29. Pass Type

Pass Type	Bus Riders	Rail Riders	Grand Total
All-Day pass	32.2%	35.6%	32.7%
7-Day Pass	5.5%	4.8%	5.3%
15-Day	3.8%	3.2%	3.6%
31-Day Pass	16.2%	15.4%	15.5%
Semester Pass	2.4%	2.1%	2.3%
Full Fare	10.3%	7.1%	10.0%
Employer Subsidized Pass (Platinum Pass)	8.8%	10.0%	9.0%
FREE	9.6%	2.2%	8.4%
ASU U-Pass	1.8%	12.1%	4.2%
Courtesy Pass	0.1%	0.2%	0.1%
Dial A Ride ID Card	0.0%	0.0%	0.0%
Field Trip Pass	0.0%	0.1%	0.0%
Person with Disability Fare	0.9%	0.9%	0.9%
Reduced Fare Card ID	5.8%	5.0%	5.6%
Youth Fare	1.7%	0.7%	1.6%
Senior Fare	0.8%	0.6%	0.8%
Grand Total	100.0%	100.0%	100.0%

Figure E- 30. How Transit Riders Get Transit Schedule Information

Source of Information	Bus Riders	Rail Riders	Grand Total
Customer service	7.7%	5.4%	7.3%
Mobile site	20.6%	21.7%	20.6%
NextRide	9.0%	8.2%	8.8%
Posted schedule at bus stop	10.0%	17.5%	11.8%
Transit Book	23.0%	16.6%	21.5%
Valley Metro website	27.3%	27.2%	27.5%
Other	2.3%	3.4%	2.5%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 31. Number of Vehicles in the Household

Vehicles	Bus Riders	Rail Riders	Grand Total
None (0)	55.8%	52.1%	54.3%
One (1)	24.7%	28.8%	25.8%
Two (2)	13.9%	13.3%	14.2%
Three (3)	3.7%	3.8%	3.9%
Four or more (4+)	1.8%	2.0%	1.8%
Grand Total	100.0%	100.0%	100.0%

Figure E- 32. Vehicle Availability (Those with one or more vehicles in Household)

Vehicles Availability	Bus Riders	Rail Riders	Grand Total
No	65.2%	42.7%	59.6%
Yes	34.8%	57.3%	40.4%
Grand Total	100.0%	100.0%	100.0%

Figure E- 33. Number of People Living in the Household

Persons	Bus Riders	Rail Riders	Grand Total
One (1)	22.5%	27.4%	23.1%
Two (2)	23.9%	28.1%	24.9%
Three (3)	19.0%	17.5%	18.8%
Four (4)	16.0%	13.4%	15.6%
Five (5)	9.1%	6.9%	8.7%
Six (6)	4.9%	3.3%	4.6%
Seven (7)	2.1%	1.5%	1.9%
Eight (8)	0.9%	0.8%	0.9%
Nine (9)	0.4%	0.2%	0.4%
Ten or More (10+)	1.1%	0.8%	1.1%
Grand Total	100.0%	100.0%	100.0%

Figure E- 34. Number of Adults Living in the Household

Persons	Bus Riders	Rail Riders	Grand Total
One (1)	28.8%	32.4%	29.1%
Two (2)	38.9%	38.5%	39.2%
Three (3)	19.5%	17.6%	19.2%
Four (4)	8.5%	8.0%	8.5%
Five (5)	2.3%	2.0%	2.3%
Six (6)	0.9%	0.7%	0.8%
Seven (7)	0.3%	0.2%	0.3%
Eight (8)	0.1%	0.1%	0.1%
Nine (9)	0.1%	0.0%	0.1%
Ten or More (10+)	0.6%	0.5%	0.5%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 35. Number of Employed Persons in the Household

Employed Persons	Bus Riders	Rail Riders	Grand Total
None (0)	12.0%	14.8%	12.5%
One (1)	36.9%	36.8%	36.6%
Two (2)	33.1%	32.4%	33.2%
Three (3)	12.0%	10.7%	11.9%
Four (4)	4.0%	3.9%	4.0%
Five (5)	1.0%	0.8%	1.0%
Six (6)	0.4%	0.2%	0.4%
Seven (7)	0.1%	0.1%	0.1%
Eight (8)	0.1%	0.1%	0.1%
Nine (9)	0.0%	0.0%	0.0%
Ten or More (10+)	0.4%	0.2%	0.3%
Grand Total	100.0%	100.0%	100.0%

Figure E- 36. Employment Status

Employment Status	Bus Riders	Rail Riders	Grand Total
Employed full-time (at least 35 hrs per week)	54.1%	54.4%	53.9%
Employed part-time (less than 35 hrs per week)	14.6%	16.3%	15.1%
Not currently employed but seeking work	11.2%	10.8%	11.0%
Not currently employed and not seeking work	15.0%	12.9%	14.7%
Homemaker	0.6%	0.4%	0.6%
Retired	4.6%	5.3%	4.8%
Grand Total	100.0%	100.0%	100.0%

Figure E- 37. Student Status

Student Status	Bus Riders	Rail Riders	Grand Total
Not a student	74.3%	69.7%	72.8%
Yes - Full Time college/university	11.3%	21.3%	13.8%
Yes - Part Time college/university	2.0%	2.3%	2.1%
Yes - vocational/technical/trade school	0.9%	0.6%	0.8%
Yes - K-12th grade	11.4%	6.2%	10.5%
Other	0.1%	0.0%	0.1%
Grand Total	100.0%	100.0%	100.0%

Figure E- 38. Driver's License Status

Driver's License Status	Bus Riders	Rail Riders	Grand Total
No	57.3%	41.6%	53.8%
Yes	42.7%	58.4%	46.2%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 39. Veterans Status

Veteran Status	Bus Riders	Rail Riders	Grand Total
YES	5.9%	7.3%	6.0%
NO	93.5%	92.3%	93.4%
No answer	0.6%	0.4%	0.6%
Grand Total	100.0%	100.0%	100.0%

Figure E- 40. Visitors Status

Visitor Status	Bus Riders	Rail Riders	Grand Total
No	99.3%	96.3%	98.6%
Yes	0.7%	3.7%	1.4%
Grand Total	100.0%	100.0%	100.0%

Figure E- 41. Disability Status

Disability Status	Bus Riders	Rail Riders	Grand Total
Not disabled	88.9%	89.4%	89.2%
Blindness	0.2%	0.2%	0.2%
Deaf / Hard of hearing	0.5%	0.4%	0.5%
Declined to answer	1.0%	1.1%	1.0%
Low vision	1.2%	1.1%	1.1%
Mental or cognitive impairment	3.0%	2.8%	2.9%
Mobility problem - do not use wheelchair	2.9%	3.2%	2.9%
Mobility problem - use wheelchair	1.2%	0.9%	1.1%
Other	1.1%	0.8%	1.1%
Grand Total	100.0%	100.0%	100.0%

Figure E- 42. Age of Respondent

Age of Respondent	Bus Riders	Rail Riders	Grand Total
Under 16	2.5%	1.6%	2.4%
16-18	11.8%	7.4%	11.1%
19-24	21.9%	26.0%	23.2%
25-34	22.2%	23.3%	22.4%
35-44	15.0%	15.1%	14.8%
45-54	13.8%	13.9%	13.5%
55-64	9.3%	8.8%	9.1%
65+	3.5%	3.7%	3.5%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 43. Race/Ethnicity of Respondent

Race/Ethnicity	Bus Riders	Rail Riders	Grand Total
American Indian / Alaska Native	4.6%	5.8%	4.6%
Asian	2.9%	4.2%	3.3%
Black / African American	19.9%	16.6%	18.9%
Hispanic / Latino	28.5%	21.8%	27.3%
Native Hawaiian / Pacific Islander	0.8%	0.7%	0.8%
White	41.6%	47.7%	43.2%
Other	1.6%	3.2%	2.0%
Grand Total	100.0%	100.0%	100.0%

Figure E- 44a. Annual Household Income

Annual Household Income	Bus Riders	Rail Riders	Grand Total
Below $5,000	9.4%	9.7%	9.4%
$5,000-$9,999	3.8%	4.2%	3.8%
$10,000-$14,999	6.3%	6.4%	6.2%
$15,000-$19,999	7.8%	6.1%	7.6%
$20,000-$24,999	8.2%	6.9%	7.9%
$25,000-$29,999	8.1%	6.4%	7.6%
$30,000-$34,999	6.1%	6.2%	6.1%
$35,000-$39,999	4.6%	4.8%	4.7%
$40,000-$49,999	4.9%	5.2%	4.9%
$50,000-$59,999	3.2%	4.4%	3.5%
$60,000-$69,999	2.2%	2.7%	2.4%
$70,000-$79,999	1.6%	2.4%	1.7%
$80,000-$89,999	1.1%	1.6%	1.2%
$90,000-$99,999	0.5%	1.2%	0.7%
$100,000-$119,999	1.0%	1.8%	1.2%
120,000 or more	1.0%	1.9%	1.2%
Refusal	30.2%	28.2%	29.9%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 45b. Annual Household Income (Excluding Refusals)

Annual Household Income	Bus Riders	Rail Riders	Grand Total
Below $5,000	13.4%	13.5%	13.3%
$5,000-$9,999	5.4%	5.8%	5.4%
$10,000-$14,999	9.0%	9.0%	8.9%
$15,000-$19,999	11.2%	8.5%	10.8%
$20,000-$24,999	11.7%	9.5%	11.3%
$25,000-$29,999	11.5%	8.9%	10.8%
$30,000-$34,999	8.7%	8.6%	8.7%
$35,000-$39,999	6.7%	6.7%	6.7%
$40,000-$49,999	7.0%	7.2%	7.0%
$50,000-$59,999	4.6%	6.1%	5.0%
$60,000-$69,999	3.2%	3.7%	3.4%
$70,000-$79,999	2.2%	3.3%	2.4%
$80,000-$89,999	1.6%	2.2%	1.8%
$90,000-$99,999	0.8%	1.7%	1.0%
$100,000-$119,999	1.4%	2.6%	1.7%
120,000 or more	1.5%	2.6%	1.8%
Grand Total	100.0%	100.0%	100.0%

Figure E- 46. Speak a Language Other than English at Home

Language Other than English	Bus Riders	Rail Riders	Grand Total
No	76.2%	77.0%	76.3%
Yes	23.8%	23.0%	23.7%
Grand Total	100.0%	100.0%	100.0%

Figure E- 47. Other Language Spoken at Home (Top 10)

Other Language	Bus Riders	Rail Riders	Grand Total
Spanish	78.2%	64.2%	75.2%
Navajo	2.8%	3.7%	2.9%
Other	2.7%	3.0%	2.7%
French	1.9%	2.9%	2.1%
Arabic, Standard	1.0%	4.0%	1.7%
German	1.5%	2.7%	1.7%
Hindi	1.4%	1.7%	1.5%
Chinese	0.9%	2.2%	1.2%
AMERICAN SIGN LANGUAGE (ASL)	1.1%	1.3%	1.2%
Chinese, Mandarin	0.8%	2.0%	1.1%

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Figure E- 48. English Ability (Those that speak a language other than English)

English Ability	Bus Riders	Rail Riders	Grand Total
Not at all	2.7%	0.9%	2.4%
Grand Total	6.5%	4.0%	6.3%
Well	12.9%	13.7%	13.2%
Very well	77.9%	81.5%	78.1%
Grand Total	100.0%	100.0%	100.0%

Figure E- 49. Gender of Respondent

Gender	Bus Riders	Rail Riders	Grand Total
Female	44.8%	43.5%	44.8%
Male	55.2%	56.5%	55.2%
Grand Total	100.0%	100.0%	100.0%

Figure E- 50. Trip Purpose

Trip Purpose	Bus Riders	Rail Riders	Grand Total
Home-Based Airport Trip	0.1%	0.7%	0.2%
Home-Based College Trip	7.5%	12.8%	8.9%
Home-Based Medical Trip	3.0%	2.2%	2.8%
Home-Based Other Trip	19.3%	20.5%	19.2%
Home-Based School Trip	9.2%	3.9%	8.2%
Home-Based Shopping Trip	9.3%	9.1%	9.5%
Home-Based Work Trip	40.8%	32.6%	38.8%
Non-Home Based Trip	10.8%	18.3%	12.4%
Grand Total	100.0%	100.0%	100.0%

Figure E- 51. Total Transfers Used

Number of Transfers	Bus Riders	Rail Riders	Grand Total
None	60.2%	57.9%	65.9%
One	33.0%	31.0%	28.3%
Two	6.1%	9.6%	5.2%
Three or more	0.7%	1.5%	0.6%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 52. Where Transit Trips Began

Origin Type	Bus Riders	Rail Riders	Grand Total
Airport (as an air passenger)	0.1%	0.6%	0.2%
College/University (student only)	3.9%	7.7%	4.8%
Eating/Dining Out	1.1%	2.8%	1.5%
Hotel	0.1%	0.9%	0.3%
Medical appointment/doctor's visit	1.8%	1.6%	1.7%
Other work related	1.3%	2.1%	1.5%
Personal business (bank, post office, etc)	5.0%	6.4%	5.1%
Pick up/drop off someone (daycare, school, etc)	0.5%	0.3%	0.5%
Recreation (movies, fishing, etc)	1.4%	2.5%	1.6%
School (grades 6-8)	0.2%	0.0%	0.2%
School (grades 9-12)	4.7%	2.5%	4.3%
School (grades K-5)	0.1%	0.0%	0.1%
Shopping	6.2%	5.4%	6.2%
Sightseeing	0.1%	0.5%	0.2%
Social visits (friends/relatives)	5.2%	5.6%	5.1%
Sporting event	0.0%	0.1%	0.0%
Your Home	47.4%	41.9%	46.4%
Your usual WORKPLACE	20.8%	19.0%	20.3%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 53. Where Transit Trips End

Destination Type	Bus Riders	Rail Riders	Grand Total
Airport (as an air passenger)	0.1%	0.6%	0.2%
College/University (student only)	4.7%	7.8%	5.5%
Eating/Dining Out	1.2%	3.4%	1.7%
Hotel	0.1%	0.6%	0.2%
Medical appointment/doctor's visit	2.1%	1.5%	2.0%
Other work related	1.5%	1.8%	1.6%
Personal business (bank, post office, etc)	6.9%	7.6%	7.0%
Pick up/drop off someone (daycare, school, etc)	0.7%	0.5%	0.7%
Recreation (movies, fishing, etc)	1.9%	3.9%	2.4%
School (grades 6-8)	0.2%	0.0%	0.2%
School (grades 9-12)	4.7%	2.0%	4.2%
School (grades K-5)	0.1%	0.0%	0.1%
Shopping	5.2%	5.0%	5.3%
Sightseeing	0.3%	0.8%	0.4%
Social visits (friends/relatives)	7.1%	7.3%	7.0%
Sporting event	0.1%	0.6%	0.2%
Your Home	41.9%	39.8%	41.2%
Your usual WORKPLACE	21.4%	16.6%	20.3%
Grand Total	100.0%	100.0%	100.0%

Figure E- 54. Access Mode to Transit System

Access Mode	Bus Riders	Rail Riders	Grand Total
Walked all the way	89.3%	81.2%	87.2%
Walked part of the way (got dropped off and then walke	0.4%	0.3%	0.4%
Bike	3.8%	7.4%	4.6%
Drove alone and parked	2.1%	4.9%	2.9%
Drove or rode with others and parked	0.1%	0.9%	0.3%
Was dropped off by someone	3.0%	4.1%	3.4%
Wheelchair/scooter	0.9%	0.7%	0.9%
Other	0.4%	0.4%	0.4%
Grand Total	100.0%	100.0%	100.0%

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Figure E- 55. Access Mode to Transit System (Walk Distance)

Walk Distance	Bus Riders	Rail Riders	Grand Total
Less than a block	49.3%	43.3%	48.1%
One (1)	21.0%	21.8%	21.1%
Two (2)	13.2%	15.8%	13.7%
Three (3)	6.5%	7.9%	6.7%
Four (4)	4.2%	4.6%	4.3%
Five (5)	2.2%	2.0%	2.2%
Six (6)	0.9%	1.2%	0.9%
Seven (7)	0.4%	0.9%	0.5%
Eight (8)	0.9%	0.9%	0.9%
Nine (9)	0.1%	0.3%	0.2%
Ten or more (10+)	1.3%	1.2%	1.2%
Grand Total	100.0%	100.0%	100.0%

Figure E- 56. Egress Mode from Transit System

Egress Mode	Bus Riders	Rail Riders	Grand Total
Walk all the way	90.9%	82.2%	88.8%
Walk part of the way (will walk then get picked up)	0.3%	0.6%	0.3%
Bike	3.8%	7.7%	4.7%
Get in a parked vehicle & drive alone	2.0%	5.0%	2.8%
Get in a parked vehicle & drive/ride with others	0.1%	0.5%	0.2%
Be picked up by someone	1.6%	2.9%	1.9%
Wheelchair/scooter	1.0%	0.7%	0.9%
Other	0.4%	0.4%	0.4%
Grand Total	100.0%	100.0%	100.0%

Figure E- 57. Egress Mode from Transit System (Walk Distance)

Walk Distance	Bus Riders	Rail Riders	Grand Total
Less than a block	48.2%	40.4%	46.9%
One (1)	21.2%	21.8%	21.2%
Two (2)	14.4%	15.8%	14.6%
Three (3)	6.8%	9.6%	7.4%
Four (4)	4.1%	5.2%	4.3%
Five (5)	1.9%	2.6%	2.0%
Six (6)	1.0%	1.2%	1.0%
Seven (7)	0.6%	0.9%	0.6%
Eight (8)	0.8%	1.1%	0.8%
Nine (9)	0.2%	0.3%	0.2%
Ten or more (10+)	0.9%	1.3%	0.9%
Grand Total	100.0%	100.0%	100.0%

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Attachment H— Title VI Service Change Analysis

- H.1 - April 2015
- H.2 - October 2015
- H.3 - April 2016
- H.4 - October 2016
- H.5 - April 2017
- H.6 - October 2017
- H.7 - April 2018

Title VI Analysis

City of Phoenix
Proposed April 2015 Service Changes

DRAFT

City of Phoenix Public Transit Department

Background

The City of Phoenix Public Transit Department is focused on improving the efficiency of Phoenix's transit service to best serve our passengers' needs. The Department reviews routes semi-annually to determine if improvements can be made that will offset the cost of enhancing transit service. The proposed bus service changes are funded through Transit 2000, the dedicated Phoenix transit tax, and Proposition 400, the regional transportation tax. A public outreach process for the proposed change will be conducted.

Staff developed and assessed a series of alternative route alignments and chose as the final proposal the option with minimal impacts to schedule and travel time. The projects are indicated in *Figure 1A: April 2015 Service Change Assessment Overview.*

Proposed Service Changes

I. **Route 7** (7th Street) – The route would be modified to increase bus frequency between Central Station and Union Hills Drive from 20 minutes to 15 minutes during the peak hours. Route 7 frequency north of Union Hills Drive and south of Van Buren Street would be reduced from 20 minutes to 30 minutes during the peak hours. To balance the cost increase from increasing frequency, Route 7 could no longer service Central Station or Ed Pastor Transit Center.

II. **Route 13** (Buckeye Road)- The route would be modified to eliminate service between Terminal 2 and Terminal 4 at Phoenix Sky Harbor International Airport.

III. **Route 50** (Camelback)- In Scottsdale, eliminate route east of Camelback Rd. and Scottsdale Rd. (segment will be covered by new Camelback Road Trolley.) Match Phoenix frequency west of Scottsdale Rd.

IV. **Route 108** (Elliot/48th Street)- In Phoenix, Route 108 would be modified to eliminate peak hour service between 48th Street & Chandler Blvd and Pecos Park & Ride.

V. **Central South Mountain East RAPID** – New RAPID service would be created from State Capital to the new East Baseline Rd Park & Ride at 24th Street & Baseline Rd. The new RAPID service will travel via Washington/Jefferson St, Central /1st Ave, and Baseline Road.

Public Outreach

The Public Transit Department will use the locally adopted public outreach process for the proposed April 2015 bus service changes. Staff will solicit public comment on service changes through public outreach events. In addition, a formal public hearing will be scheduled to collect public input and feedback on the proposed service changes. Advertisements for the public meetings will be placed in local newspapers; information will be posted to the Phoenix Public Transit Department and Valley Metro websites.

The following outreaches events have been scheduled to present the proposal to the public:

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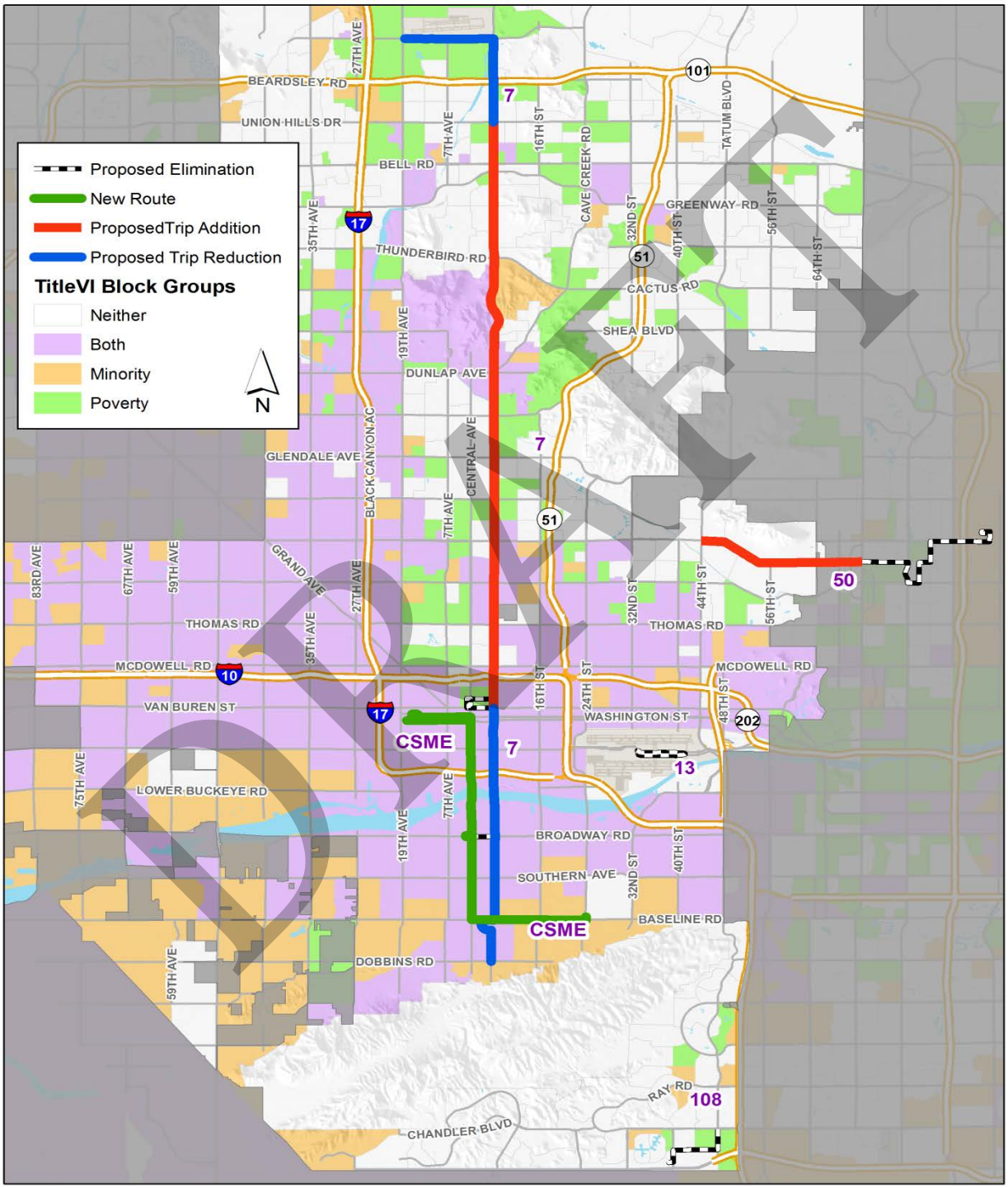
December 2nd, 2014
Valley Metro, 10th Floor Boardroom
Open House: 5:00-5:30PM; Hearing: 5:30-6:15PM

Figure 1A: April 2015 Service Change Assessment Overview.



Magnitude of Service Changes

The first step of Title VI assessment is to measure and document the magnitude of service change being proposed. If a project qualifies as a "major service change", the project assessment must include a second step, an evaluation to determine whether those changes have a discriminatory impact on minority and/or low-income populations.

Valley Metro in cooperation with the City of Phoenix Public Transit Department is in the process of approving guidelines to define a major change. Proposed indicators include:

- Adding or Eliminating an entire route
- Expanding or reducing existing route by more than 25% of Weekday route revenue miles
- Expanding or reducing existing route by more than 25% of Saturday route revenue miles
- Expanding or reducing existing route by more than 25% of Sunday route revenue miles
- Expanding or reducing number of route directional miles more than 25%
- A change resulting in a 25% or greater variance from the existing route alignment

By these standards, routes with "major service change" include Route 108 and the new CSM East RAPID. These finding are summarized in *Table 1A: Magnitude of Impact- Major Change Indicators by Individual Project.* Supporting documentations of these findings are included in *Table 1B: Measurement and Comparison of Project Magnitude.* These projects will therefore move to the second level of assessment.

Table 1A: Magnitude of Impact- Major Change Indicators by Individual Projects

Route	Add or Eliminate Route	Expanding or reducing existing route by more than 25% of Weekday route revenue miles	Expanding or reducing existing route by more than 25% of Saturday routes revenue miles	Expanding or reducing existing route by more than 25% of Sunday route revenue miles	Expanding or reducing number of route directional miles more than 25%	A change resulting in a 25% or greater variance from the existing route alignment	Continue to Step 2 of Assessment
7 No Central Station	-	-	-	-	-	-	No
7 No Ed Pastor	-	-	-	-	-	-	No
7 Peak Core	-	-	-	-	-	-	No
13	-	-	-	-	-	-	No
108	**-**	**Reduce > 25%**	**-**	**-**	**Reduce > 25%**	**-**	**Yes**
CSME RAPID	**Yes**	**Expand > 25%**	**-**	**-**	**Expand > 25%**	**-**	**Yes**

Table 1B: Measurement and Comparison of Project Magnitude

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	Revenue Miles								
	Existing Service			Proposed Service			% Difference		
Route	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
7 No Central Station	2,289.3	1,508.2	1,508.2	2,447.4	1,445.2	1,445.2	6.9%	-4.2%	-4.2%
7 No Ed Pastor	2,289.3	1,508.2	1,508.2	2,462.6	1,433.5	1,433.5	7.6%	-5.0%	-5.0%
7 Peak Core	2,289.3	1,508.2	1,508.2	2,338.8	1,508.2	1,508.2	2.2%	0.0%	0.0%
13	756.4	391.2	391.2	706.4	365.4	365.4	-6.6%	-6.6%	-6.6%
108	293.0	124.8	114.1	246.1	124.8	114.1	-16.0%	0.0%	0.0%
CSME RAPID	-	-	-	90.0	-	-	100.0%	-	-

	Route Directional Miles		
Route	Current Mile	Proposed Mile	Difference
7 No Central Station	54.0	53.3	-1.3%
7 No Ed Pastor	54.0	50.9	-5.7%
7 Peak Core	54.0	54.0	0.0%
13	26.0	24.4	-6.2%
108	11.0	7.2	-33.9%
CSME RAPID	0.0	17.3	100.0%

Major Decrease

Major Increase

Impacts on Title VI Populations

In the assessment conducted in *Magnitude of Service Changes*, two projects were identified as having a potential major impact on riders. We will assess if a disproportionate impact on low-income households and/or minority populations is evident. The projects to be assessed are:

- **Route 108** (Elliot/48th Street)- In Phoenix, Route 108 would be modified to eliminate peak hour service between 48th Street & Chandler Blvd and Pecos Park & Ride.

- **Central South Mountain East RAPID** – New RAPID service would be created from State Capital to the new East Baseline Rd Park & Ride at 24th Street & Baseline Rd. The new RAPID service will travel via Washington/Jefferson St, Central /1st Ave, and Baseline Road.

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To determine if a proposed service change would disproportionately impact low-income and/or minority populations, we would compare the percentage of the low-income/minority population within the service area of the bus route to the regional average.

The service area is defined as ½ mile from the bus route segments affected. The regional average is based on the statistics for Maricopa County. The dataset used to calculate the percentages is US Census American Community Survey 2008-2012 5 Year Estimate. The geographic unit of measurement in the dataset is Census Block Groups.

Census Block Groups with higher percentage of low-income population compare to the regional average is categorized as low-income census block groups. Census Block Groups with higher percentage of minority population compare to the regional average is categorized as minority census block group. If the service area of a major service change route is within low-income and/or minority census block groups, the project will require additional assessment explaining mitigation or mitigating factors to justify the proposed change.

Maps for each proposed projects with major impacts are shown in *Figure 2A/B: Projects with Major Impacts*. Percentages of Low-Income Households and Minority Population for the region and the route segments with major impacts are summarized below in *Table2A*.

Table 2A: Project and Regional Service Area Low-Income and Minority Population Average

	Percent Low-Income Households	Percent Minority Population
Regional Average	13.2%	41.4%

1/2 Miles from route segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
Route 108	7.7%	30.1%
CSM East RAPID	34.0%	83.2%

Data Source: US Census American Community Survey 2008-2012 5 Year Estimate

As indicated in *Table2A: Projects and Regional Service Area Low-Income and Minority Population Average,* The new Central South Mountain East RAPID's service area has a higher percentage of low-income households and minority population than the regional average. However, due to the fact that adding a new route is a positive impact to the community, no mitigation is required for this propose service change.

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Figure 2A: Projects with Major Impacts- ROUTE 108

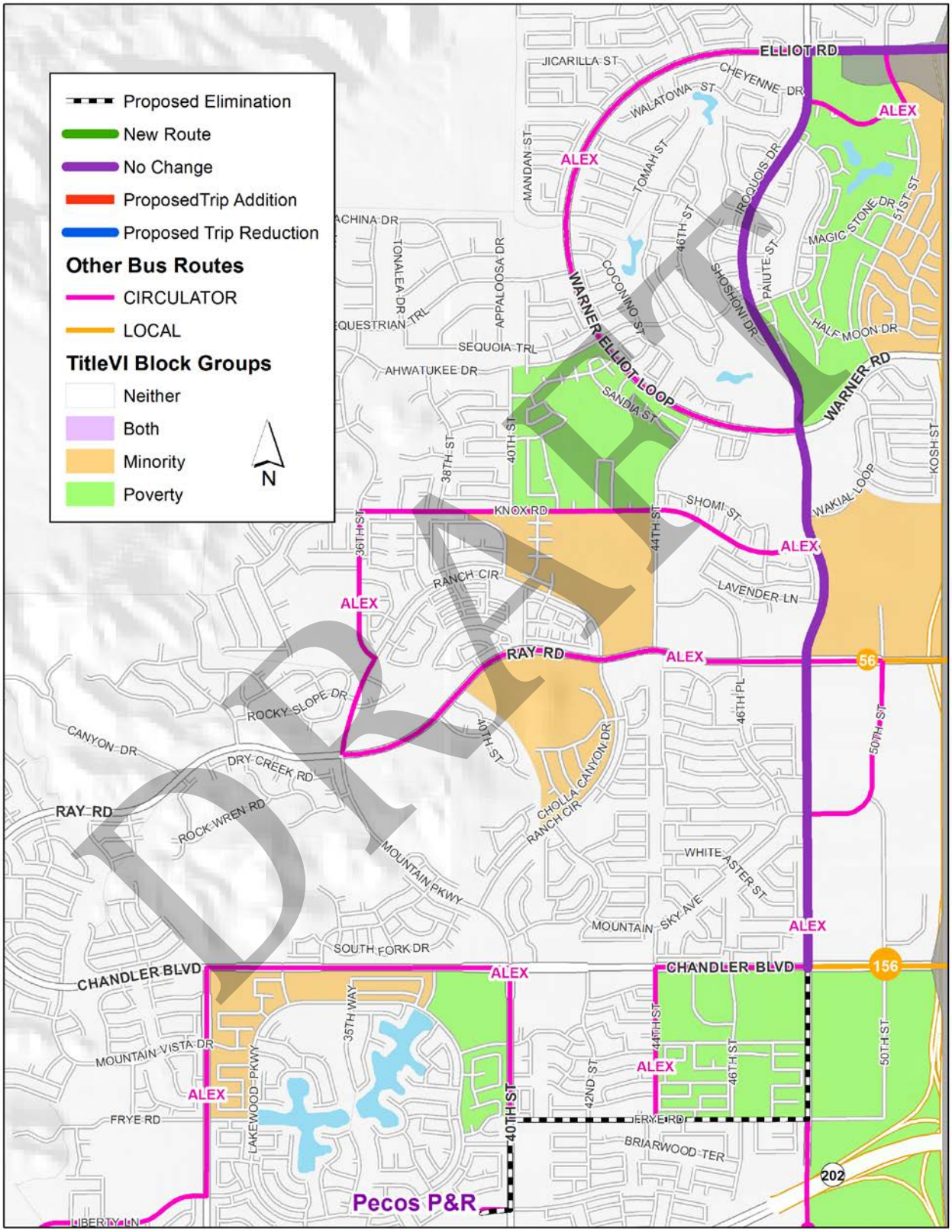
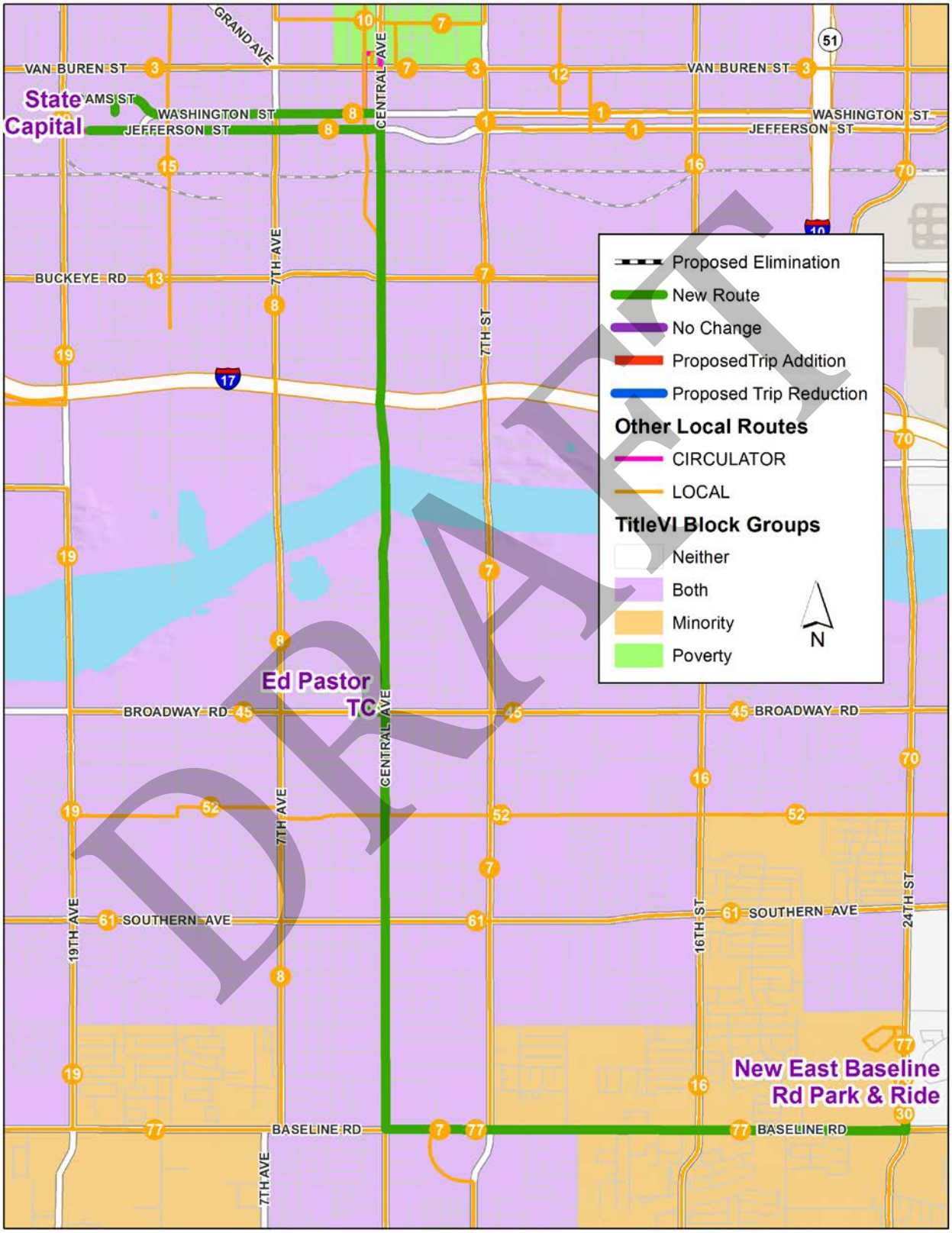


Figure 2B: Projects with Major Impacts- NEW Central South Mountain East RAPID



Mitigation of Impacts

This section will offer justification for the proposed service change and describe alternative transit choices that will remain available to the affected riders.

There are three routes in the April 2015 Proposed Service Change with potential negative impacts on the riders. Although none of the changes qualified as major service changes or were identified as disproportionately impacting low-income and/or minority populations, justification for the service change and any alternative service are described below:

Route 7 (7th Street)

The proposed service change on Route 7 will discontinue service to Central Station and/or Ed Pastor Transit Center in order to enhance service frequency between Van Buren St and Union Hills Drive.

Census Block Groups by Central Station and at Ed Pastor Transit Center have higher percentage of Minority Population and Low-Income Households than the regional average. Eliminating Route 7 service to both Transit Centers will have a negative impact on the riders. However, as illustrated in *Figure 2C: Route 7 Proposed Service Change*, there are alternative local routes nearby to continue provide service for the riders.

At Central Station, passengers from Route 7 can take Route 10 or Route 3 into Central Station from 7th Street. At Ed Pastor Transit Center, passengers can take Route 45 on Broadway Road at 7th Street to get to the transit center.

Route 13 (Buckeye Road)

The proposed service change on Route 13 will discontinue service between Terminal 2 and Terminal 4 at Phoenix Sky Harbor International Airport.

As seen in *Figure 2D: Route 13 Proposed Service Change*, Census Block Groups in Phoenix Sky Harbor International Airport does not have a higher percentage of Low-Income Households or Minority Population than the regional average. There is an alternative service to all terminals if Route 13 is terminated at Terminal 2. In December of 2015, Sky Train is scheduled to be extended to Terminal 3. Passengers from Route 13 at Terminal 2 can use the short walkway to Terminal 3 and board the Sky Train (free of charge) to Terminal 4.

Route 108 (Elliot/48th Street)

In Phoenix, Route 108 would be modified to eliminate peak hour service between 48th Street & Chandler Blvd and Pecos Park & Ride.

Census Block Groups by the proposed segments for elimination does have a higher percentage of Low-Income Households than the regional average. If the peak hour service to Pecos P&R from Chandler Blvd is eliminated, there are alternative routes. Local Circulator ALEX provides free service between 48th & Chandler and Pecos P&R.

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Figure 2C: Route 7 Proposed Service Change

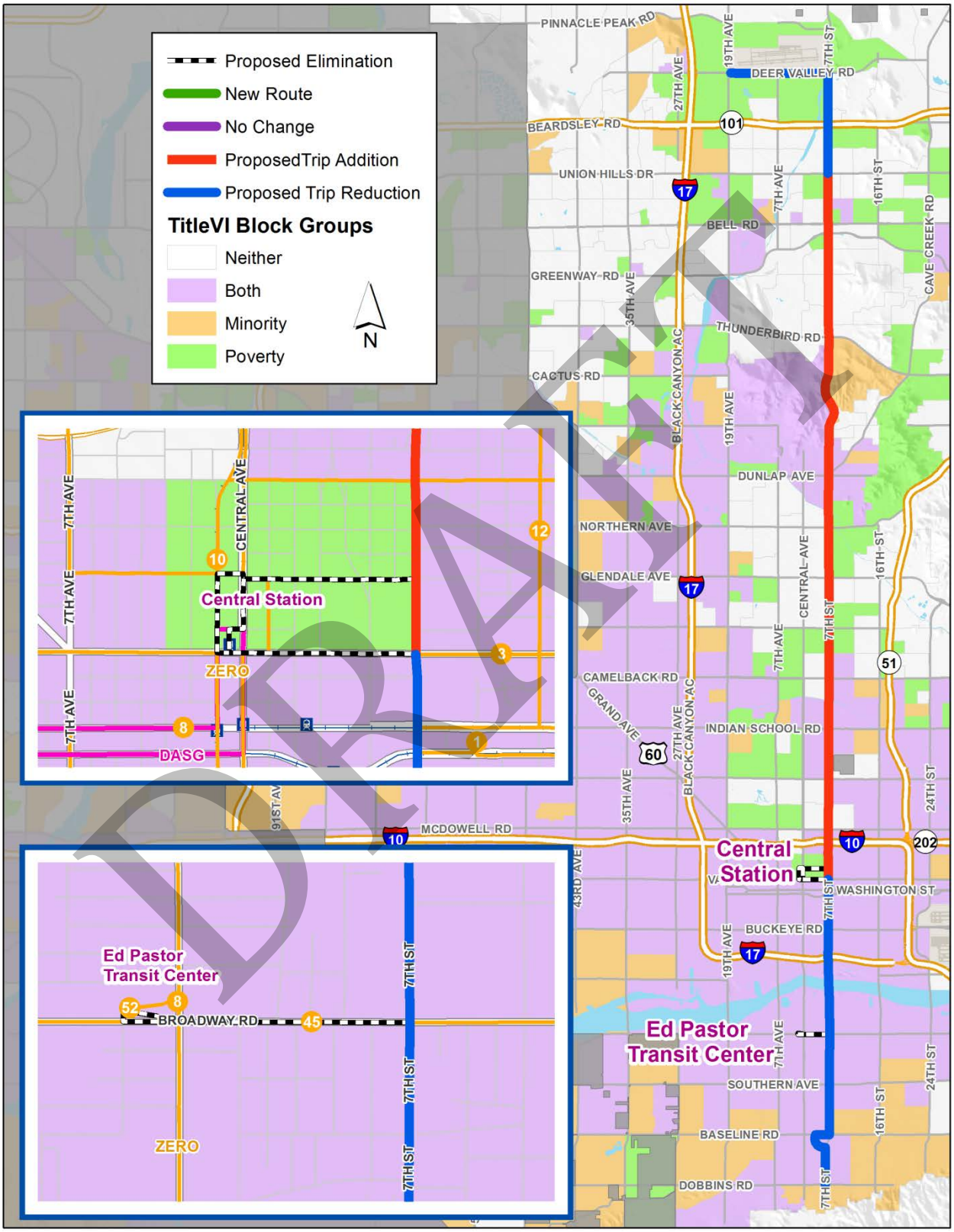

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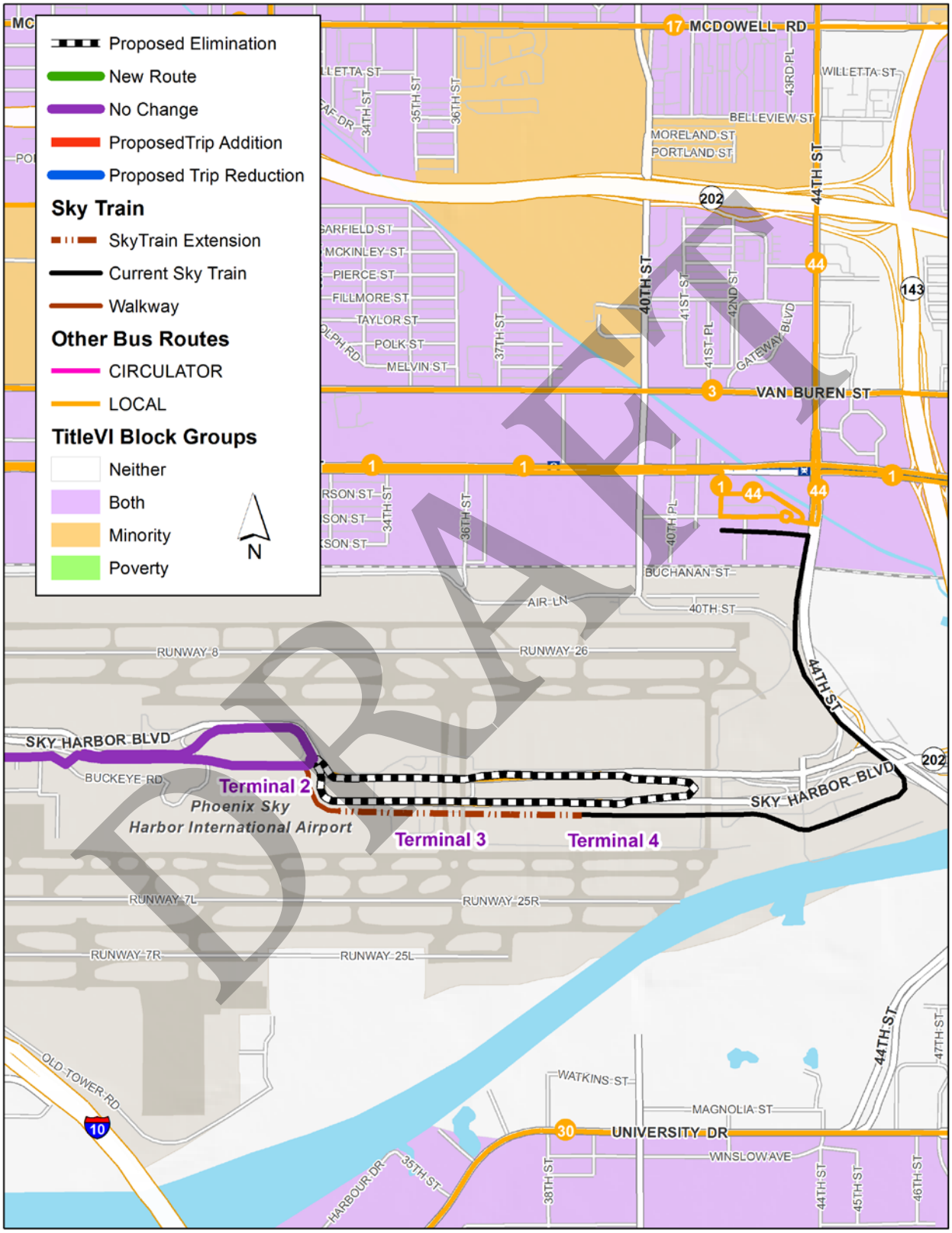
Figure 2D: Route 13 Proposed Service Change



Title VI Analysis

City of Phoenix
Proposed October 2015 Service Changes

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City of Phoenix Public Transit Department

Background

The City of Phoenix Public Transit Department is focused on improving the efficiency of Phoenix's transit service to best serve our passengers' needs. The Department reviews routes semi-annually to determine if improvements can be made that will offset the cost of enhancing transit service. The proposed bus service changes are funded through Transit 2000, the dedicated Phoenix transit tax, and Proposition 400, the regional transportation tax. A public outreach process for the proposed change will be conducted.

Staff developed and assessed a series of alternative route alignments and chose as the final proposal the option with minimal impacts to schedule and travel time. The projects are indicated in *Figure 1A: October 2015 Service Change Assessment Overview.*

Proposed Service Changes

I. **Route 3** (Van Buren) – The route would be modified to extend the first Saturday and Sunday eastbound trip to Phoenix Zoo. Currently the first AM eastbound trip on Route 3 for Saturdays and Sundays depart 4th St & La Canada Blvd and terminates at 75th St & Van Buren St. The proposed change is to extend the trip from 75th Ave to Phoenix Zoo on Van Buren St.

II. **Route 7** (7th Street) - The proposed improvement on Route 7 is to add one additional Weekday AM trip on northbound 7 between Central Station and 19th Ave & Deer Valley Road. On Saturdays and Sundays, one trip each direction would be added in the evening to extend the evening service span.

III. **Route 8** (7th Avenue) - The proposed service change on Route 8 is to add one more trip each direction on Saturday and Sunday after the current last trip of the day.

IV. **Route 16** (16th Street) - One more trip would be added on southbound Route 16 to extend the hour of operation by 30 minutes.

V. **Route 19** (19th Avenue) – Route 19 would end its detour routing between Montebello Avenue and Dunlap Avenue on 19th Avenue. The propose change is to restore direct service on 19th Avenue and not detouring to 7th Avenue. In addition to lift detour on 19th Avenue, morning and afternoon peak service would be enhanced with one morning peak trip added to each direction and one afternoon peak trip added to each direction.

VI. **19C** (19th Avenue Connector) – With Route 19 returning to 19th Avenue between Montebello Avenue and Dunlap Avenue, the propose change is to discontinue 19C on 19th Avenue.

VII. **Route 27** (27th Avenue) – The proposed improvement on Route 27 is to add one more evening southbound trip between 23rd Ave & Rose Garden Ln and 27th Ave & Lower Buckeye Rd on Saturday and Sundays.

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VIII. **Route 29** (Thomas Rd) – The route would be modified to service the new Desert Sky Transit Center at the intersection of 79th Avenue and Thomas Road. In addition, two evening weekday eastbound trips would be extended to start at 91st Avenue. One evening weekday westbound trip would be extended to end at 91st Avenue. On Saturdays, the first eastbound trip departing 91st Avenue & Thomas Rd would start at 5:54AM versus the current time of 7:23AM. On Sundays, all trips each direction would be extended beyond Desert Sky Mall to 91st Avenue.

IX. **Route 35** (35th Avenue) – On Saturdays and Sundays, one northbound trips and two southbound trips would be added in the evening to extend the span of service.

X. **Route 41** (Indian School) – On Sundays, every other trip would be extended beyond 83rd Avenue to 107th Avenue & Indian School.

XI. **Route 50** (Camelback) – In Scottsdale, the route would be modified to terminate at Scottsdale Road. Service between Scottsdale Road and Scottsdale Community College would be covered by the new Camelback Trolley. In addition, four morning trips and one afternoon trip would be added to improve peak hour service. Finally, service frequency between 44th & Camelback and Scottsdale & Camelback would be improved to match Route 50 service frequency between 67th Avenue and 44th Street.

XII. **Route 60** (Bethany Home) – The proposed service change is to end Route 60 detour at 15th Avenue. Route 60 would stay on Bethany Home and not deviate to Montebello Avenue & 19th Avenue.

XIII. **Route 75** (75th Avenue) - The route would be modified to service the new Desert Sky Transit Center at the intersection of 79th Avenue and Thomas Road. In addition, one trip each direction would be added in the evening to improve the span of service

XIV. **Route 83** (83rd Avenue) - The route would be modified to service the new Desert Sky Transit Center at the intersection of 79th Avenue and Thomas Road. In addition, one trip each direction would be added in the evening to improve the span of service

XV. **MARY** (Phoenix Neighborhood Circulator) - The route would be modified to service the new Desert Sky Transit at the intersection of 79th Avenue and Thomas Road.

XVI. **I-10W RAPID** – The route would be modified to service the new Desert Sky Transit at the intersection of 79th Avenue and Thomas Road.

Figure 1A: October 2015 Service Change Assessment Overview.

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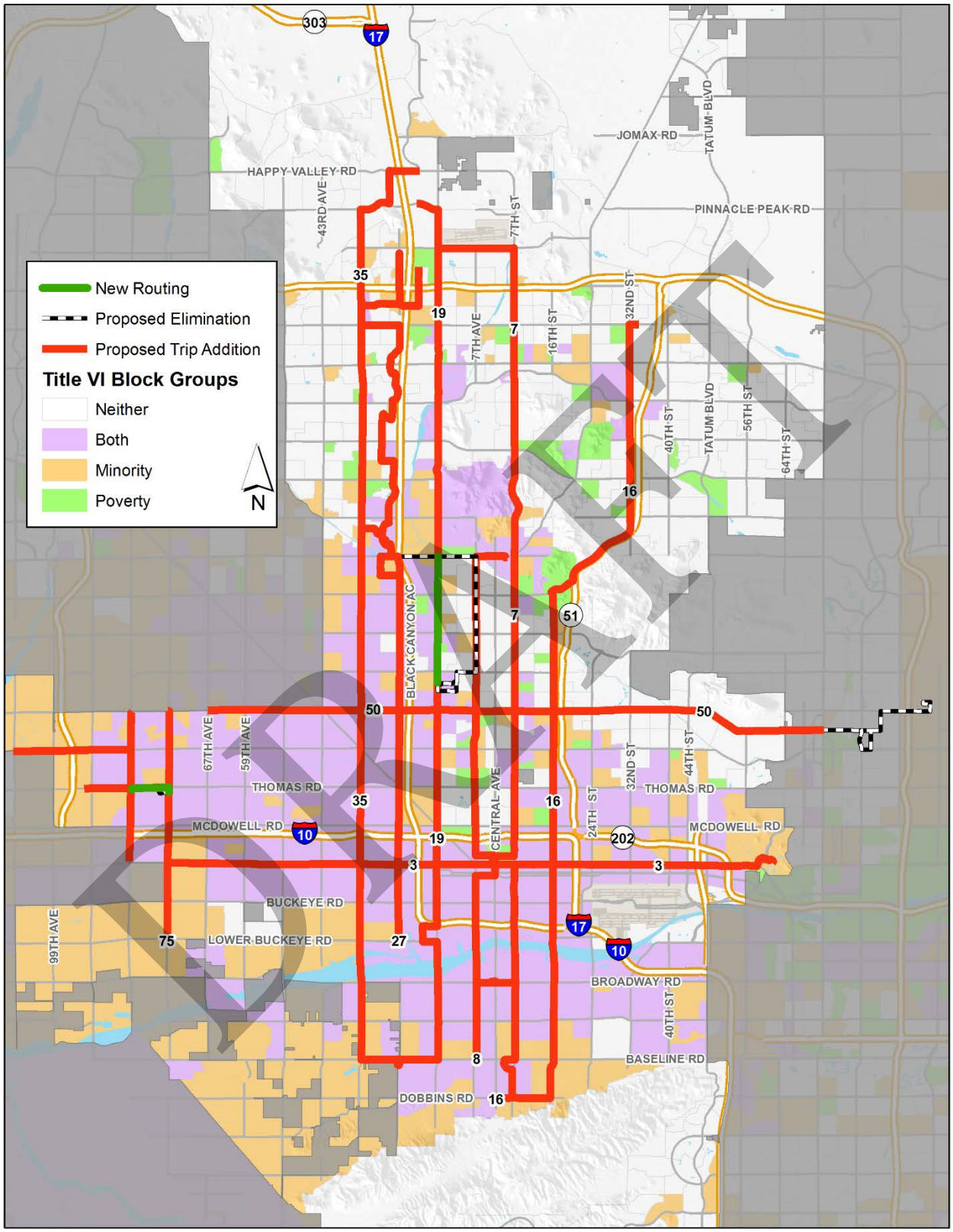

Public Outreach

The Public Transit Department will use the locally adopted public outreach process for the proposed October 2015 bus service changes. Staff will solicit public comment on service changes through public outreach events. In addition, a formal public hearing will be scheduled to collect public input and feedback on the proposed service changes. Advertisements for the public meetings will be placed in local newspapers; information will be posted to the Phoenix Public Transit Department and Valley Metro websites.

The following outreaches events have been scheduled to present the proposal to the public:

Public Hearing
Open House: 5-5:30 p.m.
Hearing: 5:30-6:15 p.m.
Valley Metro Board Room
101 N. 1st Avenue. 10th Floor
Phoenix, AZ 85003

The public comment period is ongoing until Monday, June 1, 2015

Details about proposed service changes are available online and input can be provided with an online comment card. Comments can also be sent to input@valleymetro.org or mailed to:

Valley Metro Community Relations
Attn: Service Changes
101 N. 1st Ave., Ste. 1300
Phoenix, AZ 85003

Magnitude of Service Changes

The first step of Title VI assessment is to measure and document the magnitude of service change being proposed. If a project qualifies as a "major service change", the project assessment must include a second step, an evaluation to determine whether those changes have a discriminatory impact on minority and/or low-income populations.

Valley Metro in cooperation with the City of Phoenix Public Transit Department is in the process of approving guidelines to define a major change. Proposed indicators include:

- Adding or Eliminating an entire route
- Expanding or reducing existing route by more than 25% of Weekday route revenue miles
- Expanding or reducing existing route by more than 25% of Saturday route revenue miles
- Expanding or reducing existing route by more than 25% of Sunday route revenue miles
- Expanding or reducing number of route directional miles more than 25%
- A change resulting in a 25% or greater variance from the existing route alignment

By these standards, routes with "major service change" include Route 19C and the Route 50 in Scottsdale. These finding are summarized in *Table 1A: Magnitude of Impact- Major Change Indicators by Individual Project.* Supporting documentations of these findings are included in

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Table 1B: Measurement and Comparison of Project Magnitude. These projects will therefore move to the second level of assessment.

Table 1A: Magnitude of Impact- Major Change Indicators by Individual Projects

Route	Add or Eliminate Route	Expanding or reducing existing route by more than 25% of Weekday route revenue miles	Expanding or reducing existing route by more than 25% of Saturday routes revenue miles	Expanding or reducing existing route by more than 25% of Sunday route revenue miles	Expanding or reducing number of route directional miles more than 25%	A change resulting in a 25% or greater variance from the existing route alignment	Continue to Step 2 of Assessment
3	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-
19C	Yes	-	-	-	-	-	Yes
27	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-
50	-	Reduce > 25% (Scottsdale)	Reduce > 25% (Scottsdale)	Reduce > 25% (Scottsdale)	Reduce > 25% (Scottsdale)	Reduce > 25% (Scottsdale)	Yes
60	-	-	-	-	-	-	-
75	-	-	-	-	-	-	-
83	-	-	-	-	-	-	-
MARY	-	-	-	-	-	-	-
I-10W	-	-	-	-	-	-	-

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Table 1B: Measurement and Comparison of Project Magnitude

Revenue Miles

	Existing Service			Proposed Service			% Difference		
Route	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
3	2,177.1	1,007.7	738.8	2,177.1	1,057.0	768.8		4.9%	4.1%
7	2,289.3	1,508.2	1,508.2	2,308.3	1,562.1	1,562.1	0.8%	3.6%	3.6%
8	1,101.7	939.7	939.0	1,101.7	955.8	955.1		1.7%	1.7%
16	1,795.9	1,018.2	1,018.2	1,818.9	1,018.2	1,018.2	1.3%		
19	2,795.5	1,315.6	1,315.6	2,617.8	1,290.5	1,290.5	-6.4%	-1.9%	-1.9%
19C	626.2	431.2	431.2	0.0	0.0	0.0	-100.0%	-100.0%	-100.0%
27	1,474.6	1,266.6	1,266.6	1,474.6	1,288.1	1,288.1		1.7%	1.7%
29	2,681.3	1,176.3	1,119.1	2,691.6	1,181.2	1,181.1	0.4%	0.4%	5.5%
35	2,325.0	1,526.2	1,526.2	2,325.0	1,581.7	1,581.7		3.6%	3.6%
41	2,408.1	1,250.7	1,165.6	2,408.1	1,250.7	1,256.8			7.8%
50	2,197.5	1,026.3	1,026.3	2,136.6	1,088.6	1,088.6	-2.8%	6.1%	6.1%
60	885.0	644.2	644.2	812.7	577.7	577.7	-8.2%	-10.3%	-10.3%
75	410.2	211.7	211.7	473.2	229.4	229.4	15.4%	8.4%	8.4%
83	376.3	194.2	194.2	347.8	168.6	168.6	-7.6%	-13.2%	-13.2%
MARY	600.2	493.0	493.0	608.5	499.8	499.8	1.4%	1.4%	1.4%
I-10W	327.2	-	-	315.6	-	-	-3.5%	-	-

	Route Directional Miles		
Route	Current Mile	Proposed Mile	Difference
3	25.2	25.2	
7	26.9	26.9	
8	16.1	16.1	
16	22.5	22.5	
19	26.5	24.5	-7.5%
19C	**5.2**	**0.0**	**-100.0%**
27	22.1	22.1	
29	21.7	21.4	-1.6%
35	28.0	28.0	
41	22.8	22.8	
50	24.9	20.3	-18.5%
60	14.0	12.0	-14.3%
75	6.7	6.9	2.7%
83	6.1	5.1	-15.8%
MARY	21.4	21.6	0.8%
I-10W	13.1	12.6	-4.0%

Major Decrease

Major Increase

Impacts on Title VI Populations

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In the assessment conducted in *Magnitude of Service Changes*, two project were identified as having a potential major impact on riders. We will assess if a disproportionate impact on low-income households and/or minority populations is evident. The projects to be assessed are:

- **19C** (19th Avenue Connector) – With Route 19 returning to 19th Avenue between Montebello Avenue and Dunlap Avenue, the propose change is to discontinue Route 19C.
- **Route 50** (Camelback) – In Scottsdale, the route would be modified to terminate at Scottsdale Road. Service between Scottsdale Road and Scottsdale Community College would be covered by the new Camelback Trolley.

To determine if a proposed service change would disproportionately impact low-income and/or minority populations, we would compare the percentage of the low-income/minority population within the service area of the bus route to the regional average.

The service area is defined as ½ mile from the bus route segments affected. The regional average is based on the statistics for Maricopa County. The dataset used to calculate the percentages is US Census American Community Survey 2009-2013 5 Year Estimate. The geographic unit of measurement in the dataset is Census Block Groups.

Census Block Groups with higher percentage of low-income population compare to the regional average is categorized as low-income census block groups. Census Block Groups with higher percentage of minority population compare to the regional average is categorized as minority census block group. If the service area of a major service change route is within low-income and/or minority census block groups, the project will require additional assessment explaining mitigation or mitigating factors to justify the proposed change.

Maps for the proposed project with major impacts are shown in *Figure 2A/B: Projects with Major Impacts*. Percentages of Low-Income Households and Minority Population for the region and the route segments with major impacts are summarized below in *Table2A*.

Table 2A: Project and Regional Service Area Low-Income and Minority Population Average

	Percent Low-Income Households	Percent Minority Population
Regional Average	13.9%	43.6%

1/2 Miles from route segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
19C	25.2%	59.9%
50 (In Scottsdale)	11.2%	22.7%

Data Source: US Census American Community Survey 2009-2013 5 Year Estimate

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As indicated in *Table2A: Projects and Regional Service Area Low-Income and Minority Population Average,* Route 19C and Route 50's service area has a higher percentage of low-income households and minority population than the regional average.

Figure 2A: Projects with Major Impacts- ROUTE 19C

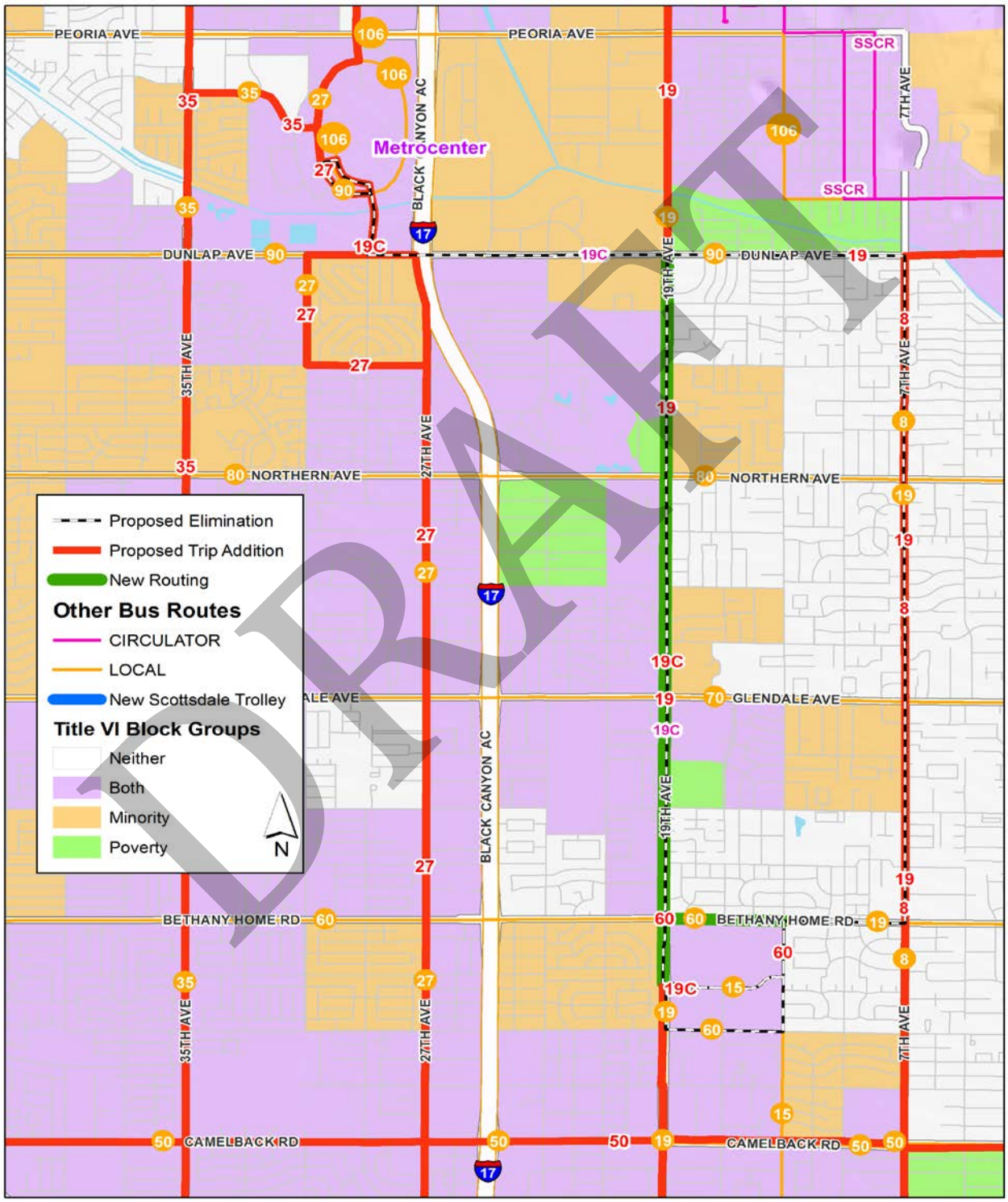
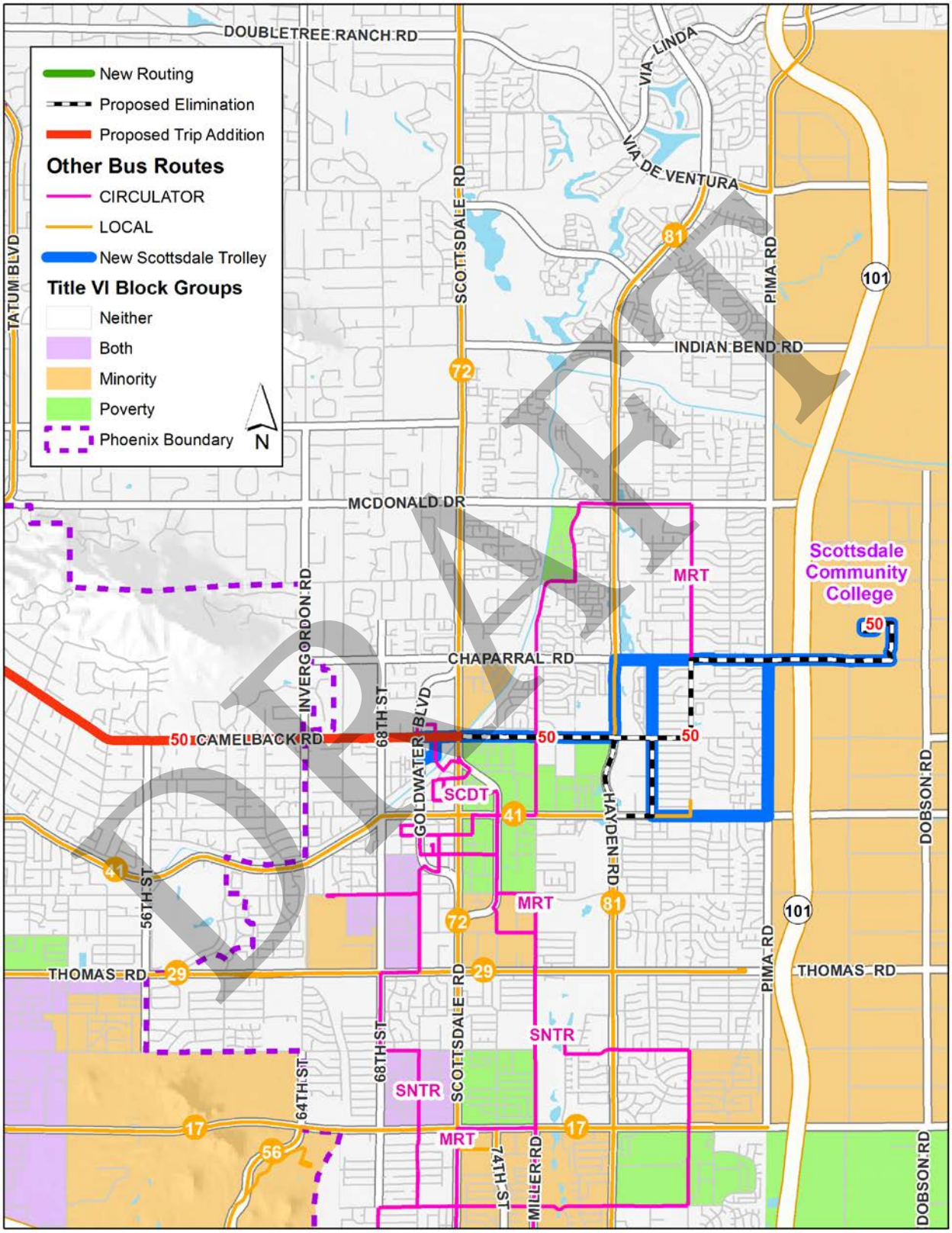


Figure 2B: Projects with Major Impacts- Route 50 (In Scottsdale)



Mitigation of Impacts

This section will offer justification for the proposed service change and describe alternative transit choices that will remain available to the affected riders.

There are three locations in the October 2015 Proposed Service Change that may have a potential negative impacts on the riders. Although only one of the changes qualified as major service changes or were identified as disproportionately impacting low-income and/or minority populations, justification for the all service changes and any alternative service are described below:

19th Avenue (19, 19C, 60)

The proposed service change is to discontinue Route 19C, end Route 19 detour between Montebello Avenue and Dunlap Avenue (via 7th Avenue), and end Route 60 deviation to Montebello Avenue.

Census Block Groups by 19th Avenue between Bethany Home Road and Dunlap Avenue have higher percentage of Minority Population and Low-Income Households than the regional average. Eliminating Route 19C will have a negative impact on the riders. However, as illustrated in *Figure 2A,* there are alternative local routes nearby to continue provide service for the riders. Route 19 will service 19th Avenue between Montebello Avenue and Dunlap Avenue. Although Route 19 would no longer service 7th Avenue, Route 8 would continue to service 7th Avenue. Passengers that were traveling to Metrocenter via 19C would need to ride Route 19 and transfer to Route 90 on Dunlap Avenue.

Although passenger would need to pay bus fare to ride Route 19 and 90 as opposed to the free service provided on 19C, Route 19C was created as a temporary service during light rail construction on 19th Avenue and would discontinue once light rail construction is completed.

Route 60 was deviated to Montebello Avenue to provide transfer opportunity between Route 19 and 60 during Route 19's detour routing. With Route 19 ending its detour and travel straight on 19th Avenue, passenger could transfer between the two routes on 19th Avenue and Bethany Home Road. As a result, Route 60 deviation to Montebello Avenue is no longer required.

Camelback Road in Scottsdale (50, New Camelback Trolley)

The proposed service change on Route 50 would terminate the route at Scottsdale Road. Service between Scottsdale Road and Scottsdale Community College would be covered by the new Camelback Trolley.

As seen in *Figure 2B: Projects with Major Impacts- Route 50 (In Scottsdale)*, Census Block Groups in Scottsdale on Camelback Road does not have a higher percentage of Low-Income Households or Minority Population than the regional average. New Camelback Trolley would provide transit service between Scottsdale Road and Scottsdale Community College. Furthermore, Route 50 frequency between 44th & Camelback and Scottsdale Road would be improved to reduce wait time between Route 50 and the new Camelback Trolley.

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Desert Sky Mall/ Desert Sky Transit Center (29, 75, 83, I-10W, MARY)

The proposed service change in October 2015 is to relocate Route 29, 75, 83, I-10W, and MARY from Desert Sky Mall to the new Desert Sky Transit Center. The new transit center will be at the corner of Thomas Road and 79th Avenue.

Census Block Groups by Desert Sky Mall and the New Desert Sky Transit Center does have a higher percentage of Low-Income Households than the regional average. However, there will be no transit service reduction or elimination by any routes that currently service the area. The new Desert Sky Transit Center is about 0.25 mile from the existing bus stop in Desert Sky Mall.

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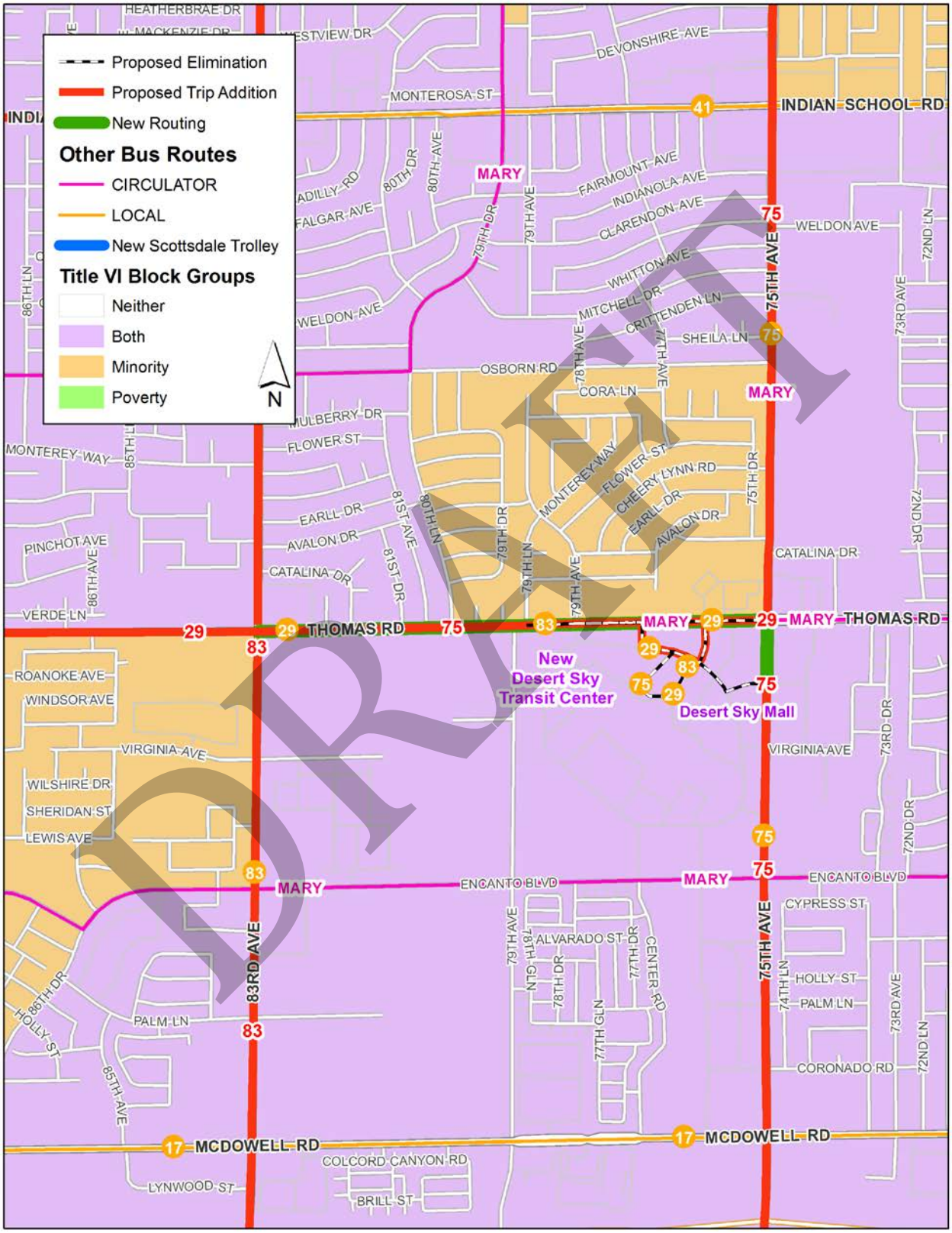
Figure 2C: Proposed Service Change: New Desert Sky Transit Center



Title VI Analysis

City of Phoenix
Proposed April 2016 Service Changes

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City of Phoenix Public Transit Department

Background

The City of Phoenix Public Transit Department is focused on improving the efficiency of Phoenix's transit service to best serve our passengers' needs. The proposed April 2016 bus service changes were developed by staff using the best methods and information available, including current ridership trends and customer feedback. They may be modified following review of feedback received during the public process outlined below. Any service cost increases will be funded through Transportation 2050, the dedicated Phoenix transportation tax.

The Public Transit Department regularly reviews routes to determine if modifications can be made to improve service. The April 2016 service changes are in response to three items, 1) the Spring 2016 opening of Northwest Extension of the light rail in Phoenix; 2) the adoption in May 2015 of the Gateway Transit Oriented District (TOD) Policy Plan; and 3) the expansion of the Sky Train shuttle to the airport Terminal 3 in December 2014. Route 19 frequency adjustments reflect anticipated demand changes associated with new light rail service. Route 10, 1 and 32 changes address the top transit route priority in the Gateway TOD Plan: the need for service along 32nd Street south of Roosevelt, with a connection to light rail. In April 2015, Route 13 service to Terminal 4 was eliminated because the new Sky Train expansion provided a connection between Terminal 3 and Terminal 4. It has since been determined that the 35 minute frequency could be improved to 30 minutes without the need for additional vehicles.

Staff developed and assessed a series of alternative route alignments and frequencies and chose as the final proposal the option with minimal impacts to schedule and travel time. The projects are indicated in Figure 1A: April 2016 Service Change Assessment Overview (Current Routes 1 and 10), Figure 1B: April 2016 Service Change Assessment Overview (Proposed Routes 1 and 32) and Figure 2: April 2016 Service Change Assessment Overview (Frequency: Routes 13 and 19).

The following assessment is based on service change policies developed by the City of Phoenix Public Transit Department and Valley Metro. Attachment I of the City of Phoenix Public Transit Title VI Program describes the City of Phoenix Major Service Change Equity Evaluation Procedures that apply to this analysis. Details describing the intent of this analysis and evaluation methods can be found in that document. The public input process, described in Section 3 of the City of Phoenix Public Transit Title VI Program, begins with this proposal from city staff. The public will have an opportunity to provide feedback through public open houses, citizen outreach efforts, social media, boards and commissions, the Citizens Transportation Commission, the Transportation and Infrastructure Subcommittee of the City Council, and the City Council before final approval. The public comment period will be open for 30 days following the posting of this proposal.

The City of Phoenix Public Transit Title VI Program is available by contacting Kristy Ruiz, City of Phoenix Title VI and ADA Coordinator, kristy.ruiz@phoenix.gov or at 602.534.3026.

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Proposed Service Changes

I. **Route 1** (Washington/Jefferson Street) – The proposed service change on Route 1 is to extend the route to Roosevelt Avenue/32nd Street along Central Avenue and Roosevelt Street to replace a portion of the current Route 10. Weekday evening frequency would increase from every 45 minutes to every 30 minutes. Weekend frequency would continue to be 30 minutes from Roosevelt Street and 32nd Street to Central Station switching to 60 minutes from Central Station to Priest Drive and Washington Street.

II. **Route 10** (Roosevelt Street/32nd Street) – Route 10 would be eliminated from Roosevelt Street to Camelback Road along 32nd Street and the remaining portion along Roosevelt Street would be added to Route 1. Camelback Road to Roosevelt Avenue along 32nd Street would continue to be served by new Route 32 (32nd Street).

III. **Route 13** (Buckeye Road) – Frequency changes: Increase weekday frequency from every 35 minutes to every 30 minutes during the day.

IV. **Route 19** (19th Avenue) – Frequency changes: Midday trips would be added on the core segment of 19th Avenue between Union Hill Drive and Jefferson Street to increase the frequency from every 24 minutes to every 15 minutes. Midday frequency outside of the core area would be reduced from every 24 minutes to every 30 minutes.

Route 19 Proposed Frequency Changes	Current	Proposed
Core Segment (Union Hills Drive to Jefferson Street)	24	15
Outside of Core (North of Union Hill Drive and South of Jefferson Street)	24	30

The core segment of Route 19 includes a four-mile segment that underlies light rail from Camelback Road to Dunlap Avenue.

V. **Route 32** (32nd Street) – New Route 32 would provide service on 32nd Street between Camelback Road and Washington Street ending at the Sky Harbor International Airport's Sky Train Transit Center near Washington Street and 44th Street. The frequency would be every 30 minutes daily.

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Figure 1A: April 2016 Service Change Assessment Overview (Existing Routes 1 and 10)

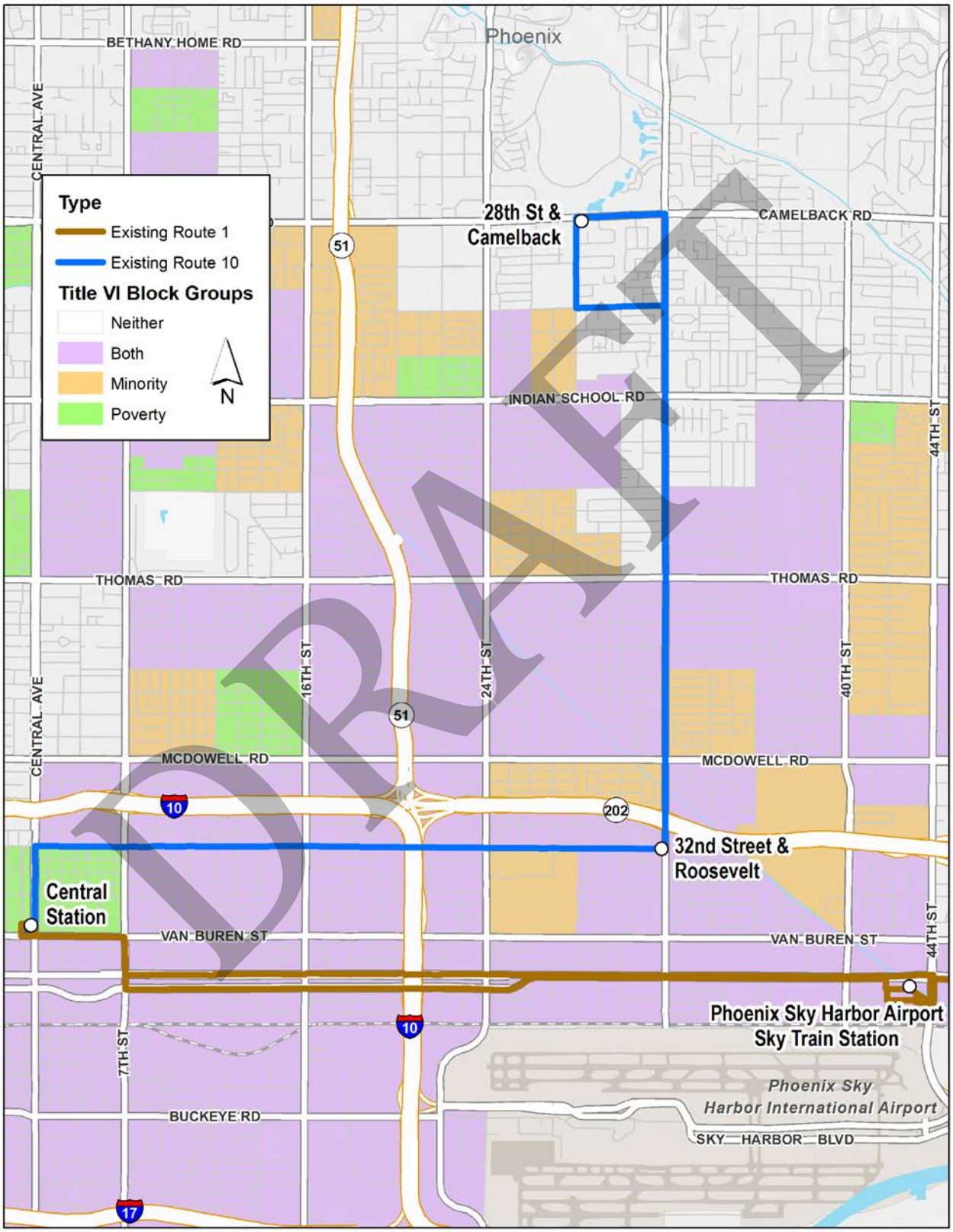


Figure 1B: April 2016 Service Change Assessment Overview (Proposed Routes 1 and 32)

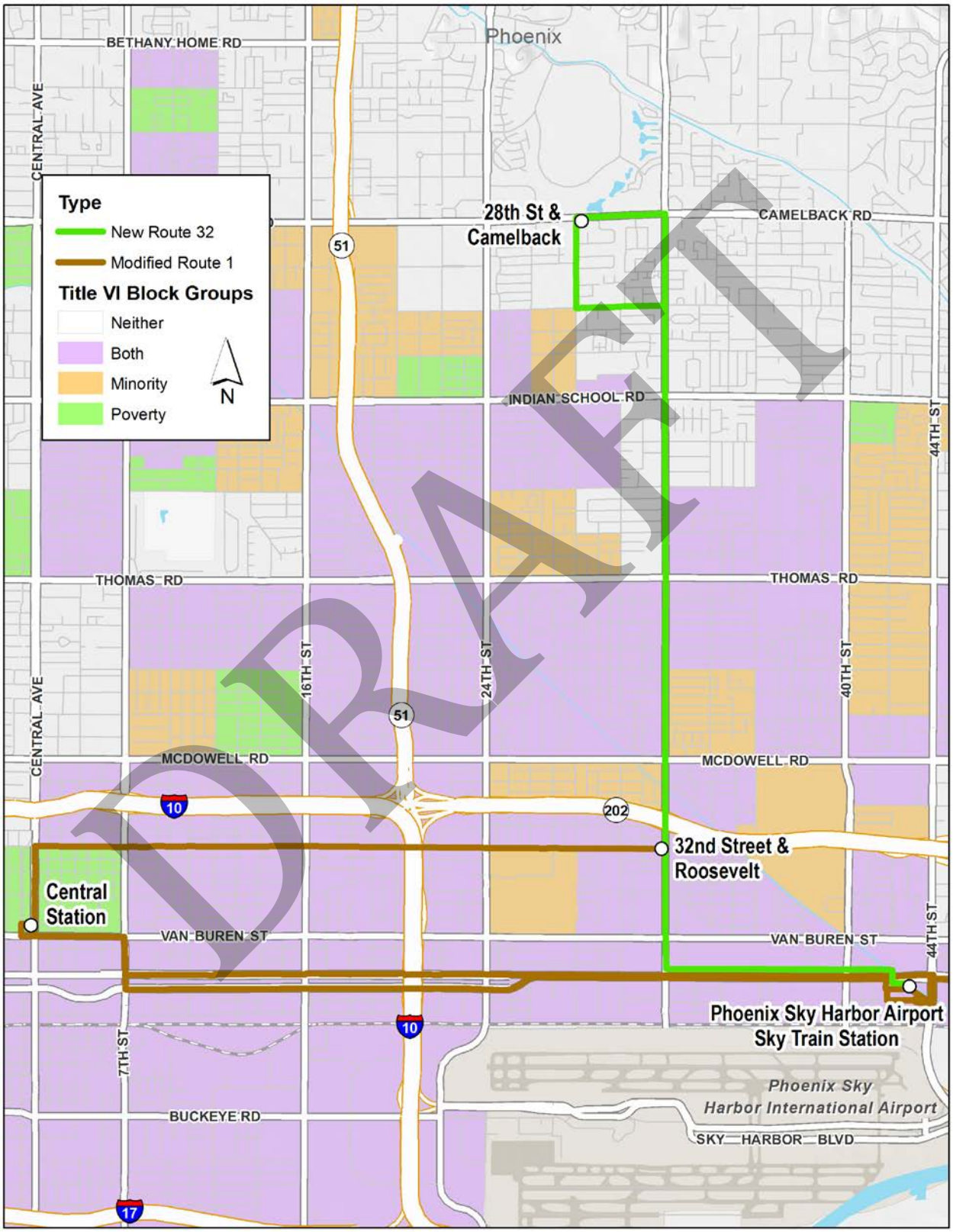
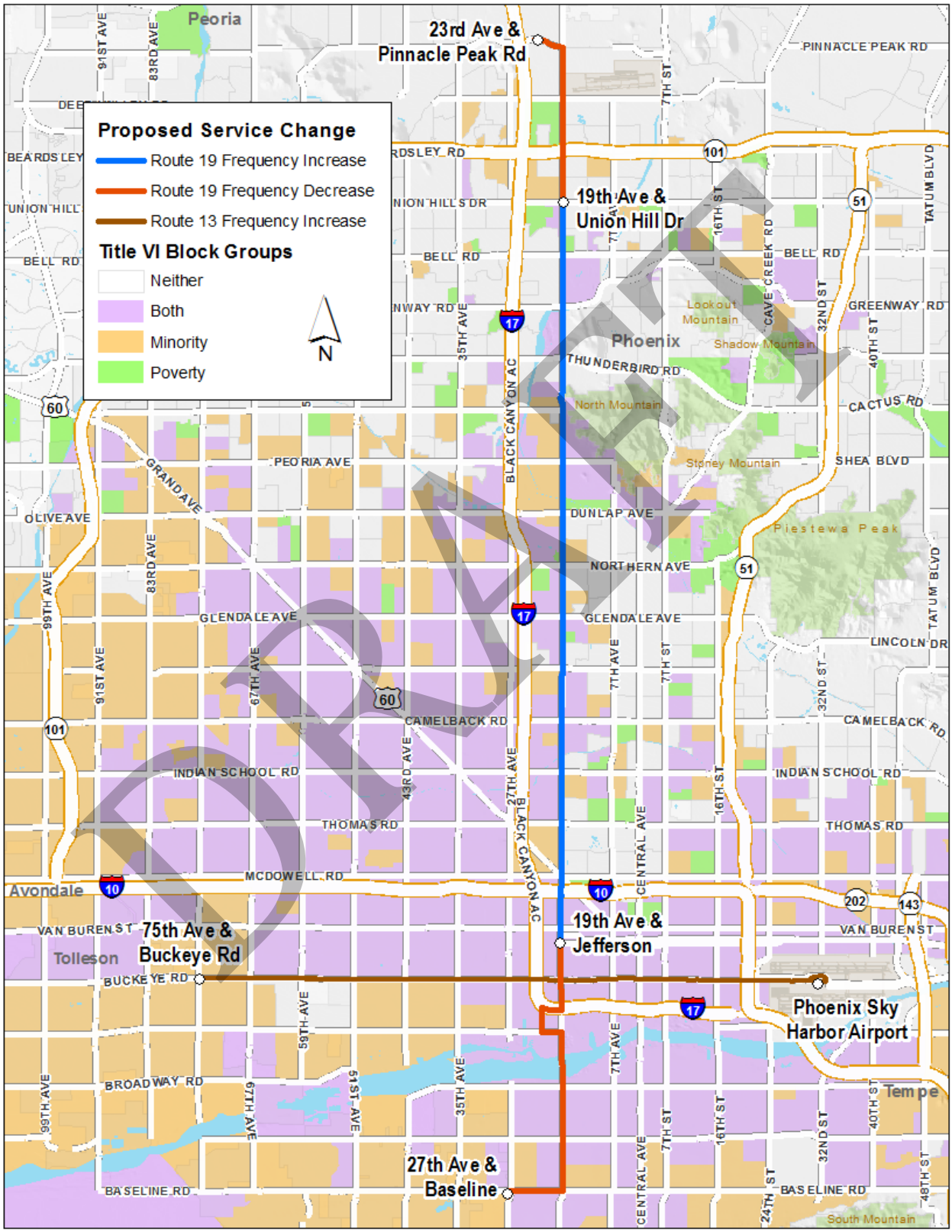


Figure 2: April 2016 Service Change Assessment Overview (Frequency: Routes 13 & 19)



Public Outreach

The Public Transit Department will use the locally adopted public outreach process for the proposed April 2016 bus service changes, as outlined in the City of Phoenix Public Transit Title VI Program. Staff will solicit public comments on service changes through public outreach events and a formal public hearing. Advertisements for the public meetings will be placed in local newspapers; information will also be posted to the Phoenix Public Transit Department and Valley Metro websites.

The following public heading has been scheduled to present the proposals to the public:

Public Hearing: December 1, 2015
Open House: 5-5:30 p.m.
Hearing: 5:30-6:15 p.m.
Valley Metro Board Room
101 N. 1st Avenue. 10th Floor
Phoenix, AZ 85003

The public comment period is ongoing until Tuesday, December 2, 2015.

Details about proposed service changes are available online and input can be provided with an online comment card. Comments can also be sent emailed to input@valleymetro.org or pubtrans@phoenix.gov -or mailed to:

Valley Metro Community Relations
Attn: Service Changes
101 N. 1st Ave., Ste. 1300
Phoenix, AZ 85003

Step 1 - Magnitude of Service Changes

The first step of Title VI assessment is to measure and document the magnitude of service change being proposed. If a project qualifies as a “major service change” (defined in Major Service Change Equity Evaluation Procedures Manual), the project assessment must include a second step, an evaluation to determine whether those changes have a discriminatory impact on minority and/or low-income populations.

Valley Metro in cooperation with the City of Phoenix Public Transit Department have adopted guidelines to define a major change. Indicators include:

- Adding or Eliminating an entire route
- Expanding or reducing existing route by more than 25% of Weekday route revenue miles
- Expanding or reducing existing route by more than 25% of Saturday route revenue miles
- Expanding or reducing existing route by more than 25% of Sunday route revenue miles
- Expanding or reducing number of route directional miles more than 25%
- A change resulting in a 25% or greater variance from the existing route alignment

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By these standards, routes with "major service change" include Route 1, Route 10, and Route 32. These finding are summarized in *Table 1A: Magnitude of Impact- Major Change Indicators by Individual Projects.* Supporting documentation of these findings are included in *Table 1B: Measurement and Comparison of Project Magnitude.* These projects will therefore move to the second level of assessment.

Table 1A: Magnitude of Impact- Major Change Indicators by Individual Projects

Route	Add or Eliminate Route	Expanding or reducing existing route by more than 25% of Weekday route revenue miles	Expanding or reducing existing route by more than 25% of Saturday routes revenue miles	Expanding or reducing existing route by more than 25% of Sunday route revenue miles	Expanding or reducing number of route directional miles more than 25%	A change resulting in a 25% or greater variance from the existing route alignment	Continue to Step 2 of Assessment
1	-	Yes	Yes	Yes	Yes	-	Yes
10	Yes	-	-	-	-	-	Yes
13	-	-	-	-	-	-	No
19	-	-	-	-	-	-	No
32	Yes	-	-	-	-	-	Yes

Table 1B: Measurement and Comparison of Project Magnitude

	Revenue Miles								
	Existing Service			Proposed Service			% Difference		
Route	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
1	482.5	241.2	241.2	814.3	481.2	481.2	68.8%	99.5%	99.5%
10	554.9	482.5	482.5	0.0	0.0	0.0	-100.0%	-100.0%	-100.0%
13	706.2	365.3	365.3	779.2	365.3	365.3	10.3%	-	-
19	2,618.2	1,290.3	1,204.3	2,791.4	1,290.3	1,204.3	6.6%	-	-
32	0.0	0	0	438.2	386.6	386.6	100.0%	100.0%	100.0%

Major Decrease

Major Increase

	Route Directional Miles		
Route	Current Miles	Proposed Miles	Difference
1	16.1	23.9	48.4%
10	16.1	0.0	-100.0%
13	24.4	24.4	-
19	49.2	49.2	-
32	0.0	12.9	100.0%

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Step 2 - Impacts on Title VI Populations

In the assessment conducted in *Magnitude of Service Changes*, three projects were identified as having a potential major impact on riders. We will assess if a disproportionate impact on low-income households and/or minority populations is evident. The projects to be assessed are:

- **Route 1** (Washington/Jefferson Street) – The proposed service change on Route 1 is to extend the route to Roosevelt Avenue/32nd Street along Central Avenue and Roosevelt Avenue to replace a portion of the Route 10 (in conjunction with creation of a new Route 32 on 32nd Street). Weekday evening frequency would increase from every 45 minutes to every 30 minutes.

- **Route 10** (Roosevelt Street/32nd Street) – Route 10 would be eliminated along 32nd Street and the remaining portion along Roosevelt Street would be combined with Route 1. 32nd Street would continue to be served by new Route 32 (32nd Street).

- **Route 32** (32nd Street) – New Route 32 would provide service on 32nd Street between Camelback Road and Washington Street ending at the Sky Harbor International Airport's Sky Train Transit Center near Washington Street and 44th Street. The frequency would be every 30 minutes daily.

To determine if a proposed service change would disproportionately impact low-income and/or minority populations, we compared the percentage of the low-income/minority population within the service area of the bus route to the regional average.

The service area is defined as ½ mile from the bus route segments affected. The regional average is based on the statistics for Maricopa County. The dataset used to calculate the percentages is US Census American Community Survey 2009-2013 5 Year Estimate. The geographic unit of measurement in the dataset is Census Block Groups.

Census Block Groups with higher percentage of low-income population compare to the regional average are categorized as low-income census block groups. Census Block Groups with higher percentage of minority population compared to the regional average are categorized as minority census block group. If the service area of a major service change route is within low-income and/or minority census block groups, the project will require additional assessment explaining mitigation or mitigating factors to justify the proposed change.

Percentages of Low-Income Households and Minority Population for the region and the route segments with major impacts are summarized below in *Table 2*.

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Table 2: Project and Regional Service Area Low-Income and Minority Population Average

	Percent Low-Income Households	Percent Minority Population
Regional Average	13.9%	43.6%

1/2 Mile from route segments with major impacts		
Route	Percent Low-Income Households	Percent Minority Population
1	41.0%	77.1%
10	30.6%	66.8%
32	24.3%	64.0%

Data Source: US Census American Community Survey 2009-2013 5 Year Estimate

As indicated in *Table 2: Projects and Regional Service Area Low-Income and Minority Population Average,* Route 1, Route 10, and Route 32's service areas have a higher percentage of low-income households and minority population than the regional average.

Impacts

This section provides justification for the proposed service change and describes alternative transit choices that will remain available to the affected riders.

Three of the April 2016 Proposed Service Changes qualified as major service changes and were identified as disproportionately impacting low-income and/or minority populations but only one may have a potential negative impact on the riders.

- The creation of a new Route 32 requires the elimination of the current Route 10 along 32nd Street. This would potentially require a transfer for some riders depending on their origin and destination.

Justification for these modifications and alternative services are described below.

Mitigation of Impacts

<u>Combining Routes 1 & 10 and Creation of New Route 32</u>

The proposed service changes include the elimination of Route 10 along 32nd Street and the combination of the remaining portion along Roosevelt Street with Route 1. Census Block Groups along Roosevelt Street and the southern portion of 32nd Street have a higher percentage of Minority Population and Low-Income Households than the regional average but service along the entire alignment would continue under the extension of Route 1 and new Route 32. These changes would result in an overall increase in service for the area, however, some trips would require an additional transfer in order to travel between Roosevelt Street and

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32nd Street. The Phoenix metro transit area is designed to operate on a grid system which means transferring from one route to another facilitates bus travel across the region. Transfers are considered a key feature of the transit system. Riders would be able to connect between the routes at the intersection of 32nd Street and Roosevelt Street. The new Route 32 would reinstate service to a portion of 32nd Street that was removed in 2010 and provide a faster, direct connection to light rail for 32nd Street riders.

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Title VI Analysis

City of Phoenix
Proposed October 2016 Service Changes

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City of Phoenix Public Transit Department

Background

The City of Phoenix Public Transit Department is focused on improving the efficiency of Phoenix's transit service to best serve our passengers' needs. The proposed October 2016 bus service changes were developed by staff using the best methods and information available, including current ridership trends and customer feedback. They may be modified following review of feedback received during the public process outlined below. Any service cost increases will be funded through Transportation 2050, the dedicated Phoenix transportation tax.

The Public Transit Department regularly reviews routes to determine if modifications can be made to improve service. The October 2016 service change is the first step towards fulfilling the two items promised to the public in Proposition 104: Expand bus service hours to match light rail and improve frequency in Phoenix. The service improvement has to be divided into two service change periods due to manpower constraints from the operating contractor.

Currently local bus services in Phoenix operates weekday between 5AM and 10PM, and on Saturday and Sunday 6AM to 8PM. The proposed October 2016 service change will improve weekday span of service in Phoenix to 4AM to midnight, and 5AM to 10PM on Saturday and Sunday for most routes. Service span for some routes with lower ridership will be improved to 4AM to 11PM on weekdays, and 5AM to 9PM on Saturdays and Sundays.

Service span on Dial-A-Ride in Phoenix will also be improved to match local bus service hours.

In addition to service span improvements, the proposed October 2016 service change will improve all local bus service frequency in Phoenix to operate at least every 30 minutes.

The proposed service changes are indicated in Table1: October 2016 Service Change Summary, Figure 1: October 2016 Service Change Assessment Overview, Figure 2: October 2016 Service Change Overview (50 Routing Change in Scottsdale) and Figure 3: October 2016 Service Change Overview (170 Routing Change in Scottsdale).

The following assessment is based on service change policies developed by the City of Phoenix Public Transit Department and Valley Metro. Attachment I of the City of Phoenix Public Transit Title VI Program describes the City of Phoenix Major Service Change Equity Evaluation Procedures that apply to this analysis. Details describing the intent of this analysis and evaluation methods can be found in that document. The public input process, described in Section 3 of the City of Phoenix Public Transit Title VI Program, begins with this proposal from city staff. The public will have an opportunity to provide feedback through public open houses, citizen outreach efforts, social media, boards and commissions, the Citizens Transportation Commission, the Transportation and Infrastructure Subcommittee of the City Council, and the City Council before final approval. The public comment period will be open for 30 days following the posting of this proposal.

The City of Phoenix Public Transit Title VI Program is available by contacting Kristy Ruiz, City of Phoenix Title VI and ADA Coordinator, kristy.ruiz@phoenix.gov or at 602.534.3026.

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Proposed Service Changes

- **Route 0** – Central Ave: In Phoenix, from Dobbins Rd. to Dunlap Ave., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day on Central Avenue between Dobbins Road and Baseline Road.

- **Route 1** – Washington/Jefferson St: In Phoenix, from Priest Dr. to Central Station, increase the weekday span of service from 4AM to 11PM. Increase Saturday and Sunday span of service from 5AM to 9PM. Increase Weekday, Saturday and Sunday frequency to 30 minutes all day.

- **Route 3** – Van Buren St: In Phoenix, from 83rd Ave. to Galvin Pkwy, increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM. From 32nd St to Galvin Parkway and from 51st Ave to 83rd Ave, increase Saturday and Sunday frequency to every 30 minutes.

- **Route 7** – 7th St: In Phoenix, from Deer Valley Rd. to Dobbins Rd., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 8** – 7th Ave: In Phoenix, from Sunnyslope Transit Center to Baseline Rd, increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 10** – Roosevelt St: In Phoenix, from Central Ave and Van Buren St to 32nd St and Roosevelt St., increase span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 12**- 12th St: In Phoenix, from Sunnyslope Transit Center to 12th St. and Jefferson St., increase the weekday span of service from 4AM to 11pm, Saturday and Sunday from 5AM to 9PM. Increase Weekday, Saturday and Sunday frequency to 30 minutes all day.

- **Route 13** – Buckeye Rd: In Phoenix, from 75th Ave to Sky Harbor Terminal #2, increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase weekday, Saturday and Sunday frequency to 30 minutes all day.

- **Route 15** – 15th Ave: In Phoenix, from Pima St. to Montebello Ave., increase the weekday span of service from 4AM to 11pm, Saturday and Sunday from 5AM to 9PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 16** – 16th St: In Phoenix, from Dobbins Rd. to Paradise Valley Community College, increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day from Central Ave. & Dobbins to 16th St. and Baseline and 16th St. & Northern Ave. to Paradise Valley Community College.

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- **Route 17** – McDowell Rd: In Phoenix, from 99th Ave. to 52nd St., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM. Saturday service frequency between 99th Ave and 83rd Ave will be improved to every 30 minutes. Sunday service will expand from 83rd Ave to 99th Ave.

- **Route 19** – 19th Ave: In Phoenix, from Baseline Rd. to Pinnacle Peak Rd., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day from 23rd Ave & Pinnacle Peak Rd to 19th Ave. & Deer Valley Rd and from 22nd Ave & Lower Buckeye Rd. to 27th Ave/Baseline Park and Ride.

- **Route 27** – 27th Ave: In Phoenix, from Lower Buckeye Rd. to Rose Garden Lane., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 28** – Lower Buckeye Rd: In Phoenix, from 22nd Ave. to 75th Ave., increase the weekday span of service from 4AM to 11pm, Saturday and Sunday from 5AM to 9PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 29** – Thomas Rd: In Phoenix, from 91st Ave. to 56th St. increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Weekday, Saturday and Sunday frequency to 30 minutes all day from Desert Sky Transit Center to 91st Ave. & Thomas Rd.

- **Route 30** – University Drive: From South Mountain Community College to 52nd St. increase the weekday span of service from 4AM to midnight, Saturday from 5AM to midnight, and Sunday from 5AM to 10PM. Increase Saturday frequency to 30 minutes all day between South Mountain Community College and 52nd St.

- **Route 32** – 32nd St: In Phoenix, from Camelback Rd. to Phoenix Sky Train Station, increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 35** – 35th Ave: In Phoenix, from Baseline Rd. to Happy Valley Rd., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 39** – 40th St: In Phoenix, from Shea Blvd. to Paradise Valley Community College. Increase the weekday span of service from 4AM to 11PM, Saturday and Sunday from 5AM to 9PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 41** – Indian School Rd: From 107 Ave. to 56th St., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM. Increase weekday frequency between 83rd Ave and 107th Ave to every 40 minutes and every 30 minutes on Saturday and Sunday.

- **Route 43** - 43rd Ave: From Buckeye Rd. to Union Hills Dr. increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

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- **Route 44** – 44th St: In Phoenix and parts of Paradise Valley, From Phoenix Sky Train to Marriott Desert Ridge Resort, increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 45** – Broadway Rd: In Phoenix, from 19th Ave. to 48th St., increase the weekday span of service from 4AM to midnight. Increase Saturday span of service from 5AM to midnight and Sunday span of service from 5AM to 10PM.

- **Route 50** – Camelback Rd: From 107th Ave. to Scottsdale Rd, increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day between 67th Ave. and 107th Ave. In Scottsdale, route will be extended to service Galleria Corporate Centre via Scottsdale Road and Drinkwater Blvd.

- **Route 51** – 51st Ave: From Lower Buckeye Rd. to ASU West Campus, increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM. Increase weekday, Saturday and Sunday frequency to 30 minutes all day.

- **Route 52** – Roeser Rd: In Phoenix, from 19th Ave. to 48th St. increase the weekday span of service from 4AM to 11PM, Saturday and Sunday from 5AM to 9PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 56** – Priest Drive: From 48th St. & Ray Rd to Priest Dr. & Elliot Rd, increase the weekday span of service from 4AM to midnight, Saturday from 5AM to midnight, and Sunday 5AM to 10PM.

- **Route 59** – 59th Ave: In Phoenix, from Buckeye Rd. to Camelback Rd., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 60** – Bethany Home Rd: In Phoenix, from 43rd Ave. to 16th St., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 61** – In Phoenix, from 43rd Ave. to 48th St. increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM.

- **Route 67** – 67th Ave: In Phoenix, from Lower Buckeye Rd. to Camelback Rd., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 70** – Glendale Ave/24th St: In Phoenix, from 43rd Ave. to Baseline Rd., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

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- **Route 75** – 75th Ave: In Phoenix, from Lower Buckeye Rd. to Camelback Rd., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 77** – Baseline Rd: In Phoenix, from 75th Ave. to 48th St., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 80** – Northern Ave: In Phoenix, from 43rd Ave. to 64th Street. Increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 83** – 83rd Ave: In Phoenix, from Van Buren St. to Camelback Rd., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 90** – Dunlap/Cave Creek Rd: In Phoenix, from 43rd Ave. to Rose Garden Rd., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

- **Route 106** – Peoria Ave: In Phoenix, from 43rd Ave. to Sunnyslope Transit Center, increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day from Metrocenter Mall to 43rd Ave. & Peoria Ave.

- **Route 108** – Elliot/48th St: From 48th St. & Chandler Blvd. to Elliot Rd. & Priest Dr., increase the weekday span of service from 5AM to midnight, Saturday from 5AM to midnight and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day between 48th St. & Chandler and Priest Dr. & Elliot Rd.

- **Route 122** – Cactus Rd: In Phoenix, from 51st Ave to 19th Ave, increase the weekday span of service from 4AM to 11PM, Saturday and Sunday from 5AM to 9PM. Increase weekday, Saturday and Sunday frequency to 30 minutes all day.

- **Route 138** – Thunderbird Rd: In Phoenix, from 51st Ave. to 32nd St., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day from Paradise Valley Mall to 32rd St. & Thunderbird Rd.

- **Route 154** – Greenway Rd: In Phoenix, from 51st Ave. to Scottsdale Rd., increase the weekday span of service from 4AM to 11PM, Saturday and Sunday from 5AM to 9PM. Increase Saturday and Sunday frequency to 30 minutes all day.

- **Route 170** – Bell Rd: In Scottsdale, modify routing along Hayden Road and Northsight Blvd. In Phoenix, from 51st Ave. to Scottsdale Rd., increase the weekday span of service from 4AM to midnight. Increase Saturday and Sunday span of service from 5AM to 10PM.

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- **Route 186** – Union Hills Drive: In Phoenix, from 51st Ave. to Scottsdale Rd., increase the weekday span of service from 4AM to midnight, Saturday and Sunday from 5AM to 10PM. Increase Saturday and Sunday frequency to 30 minutes all day.

Table 1: October 2016 Service Change Summary

Routes	Expand Service Span	Improve Weekday Frequency	Improve Saturday Frequency	Improve Sunday Frequency	Routes	Expand Service Span	Improve Weekday Frequency	Improve Saturday Frequency	Improve Sunday Frequency
0	✓		✓*	✓*	45	✓			
1	✓	✓#	✓	✓	50	✓		✓*	✓*
3	✓	✓*#	✓*	✓*	51	✓	✓	✓	✓
7	✓				52	✓		✓	✓
8	✓				56	✓			
10	✓				59	✓		✓	✓
12	✓	✓	✓	✓	60	✓			
13	✓	✓	✓	✓	61	✓			
15	✓		✓	✓	67	✓		✓	✓
16	✓		✓*	✓*	70	✓			
17	✓		✓*	✓*	75	✓		✓	✓
19	✓		✓*	✓*	77	✓		✓	✓
27	✓				80	✓			
28	✓		✓	✓	83	✓		✓	✓
29	✓	✓*	✓*	✓*	90	✓			
30	✓		✓		106	✓		✓*	✓*
32	✓				108	✓		✓*	✓*
35	✓				122	✓	✓	✓	✓
39	✓		✓	✓	138	✓		✓*	✓*
41	✓	✓*	✓*	✓*	154	✓		✓	✓
43	✓		✓	✓	170	✓			
44	✓		✓	✓	186	✓		✓	✓

* Improvements only on some segments of the route in Phoenix

Improvements in the evening only

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Figure 1: October 2016 Service Change Assessment Overview

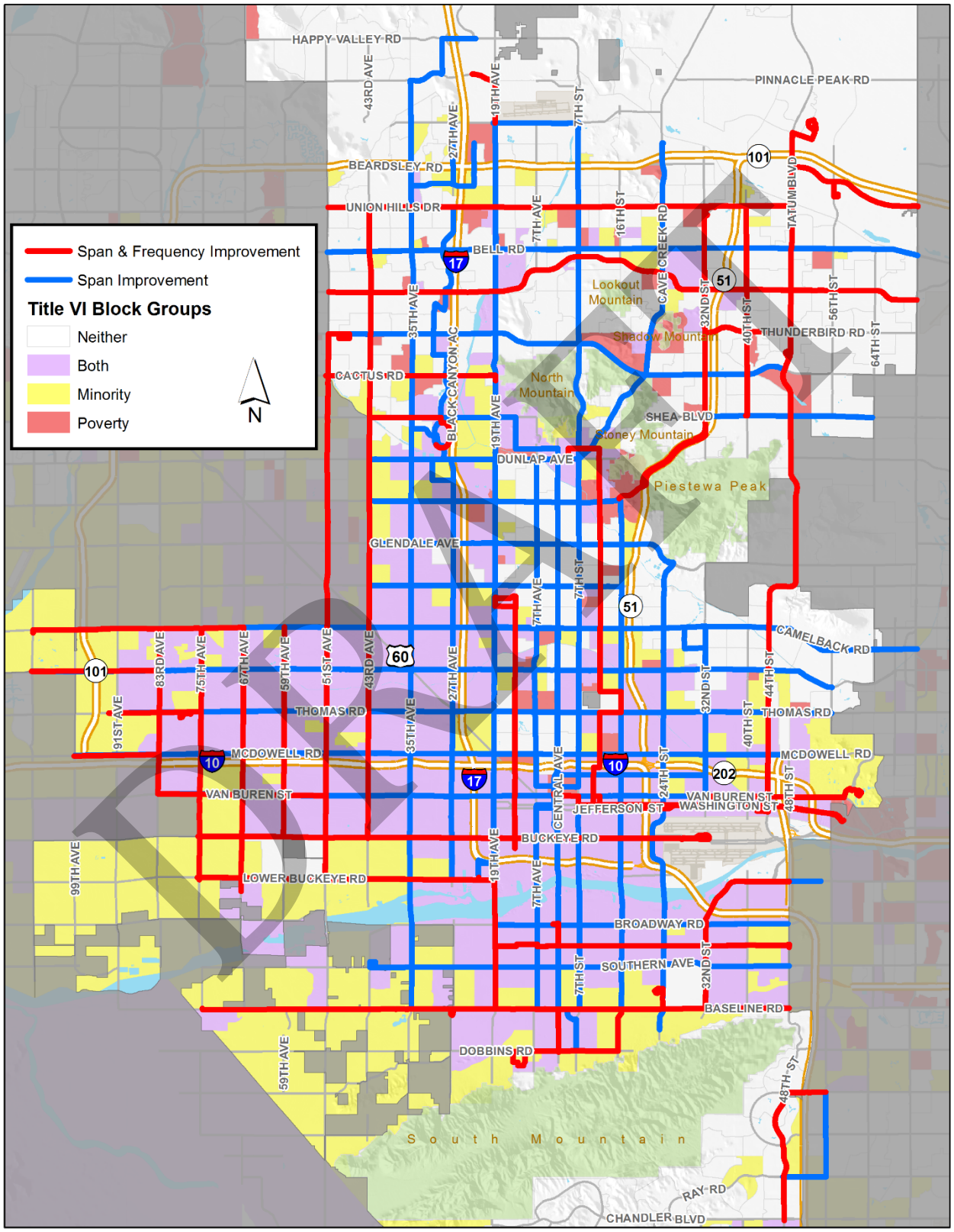


Figure 2: October 2016 Service Change Overview (50 Routing Change in Scottsdale)

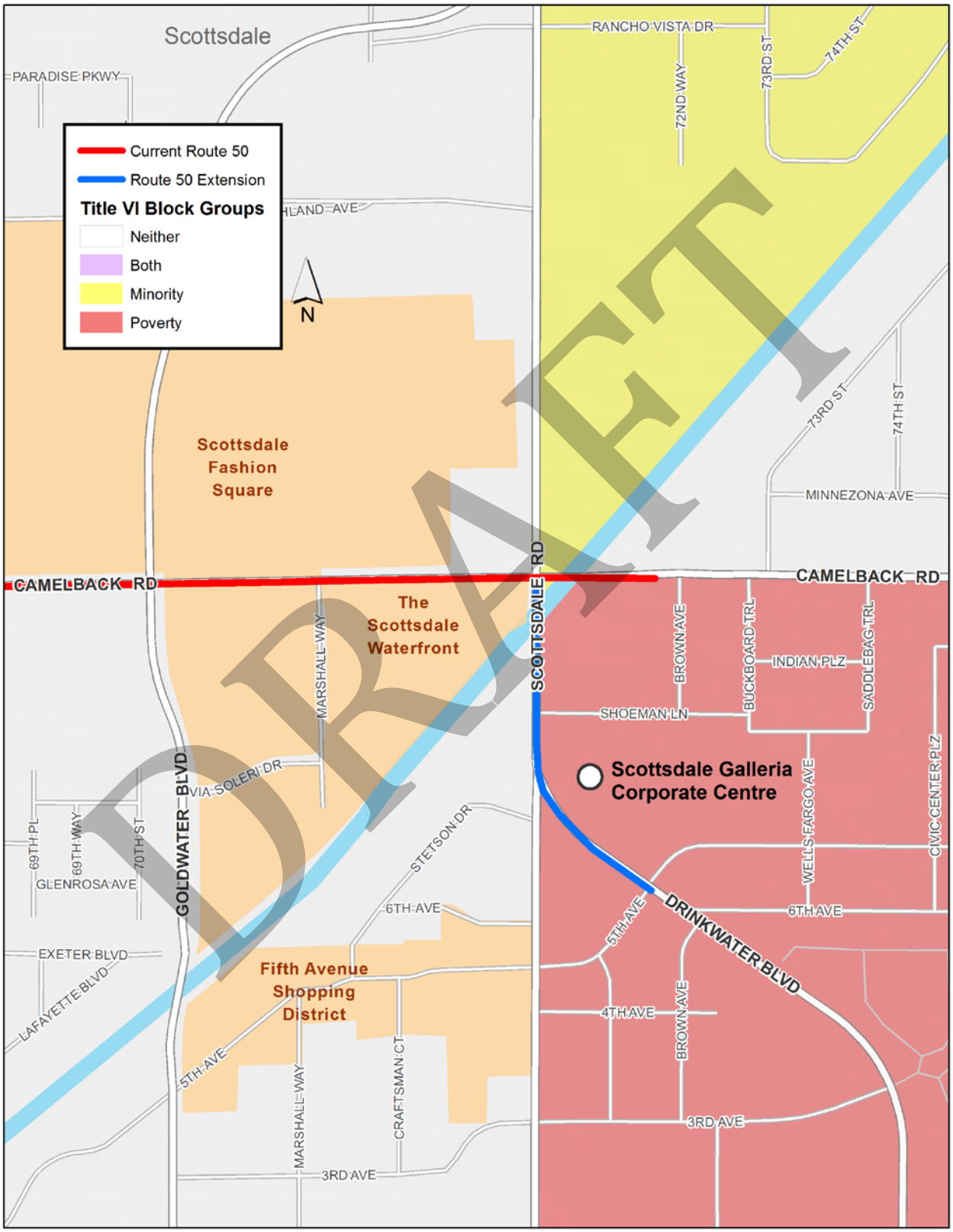
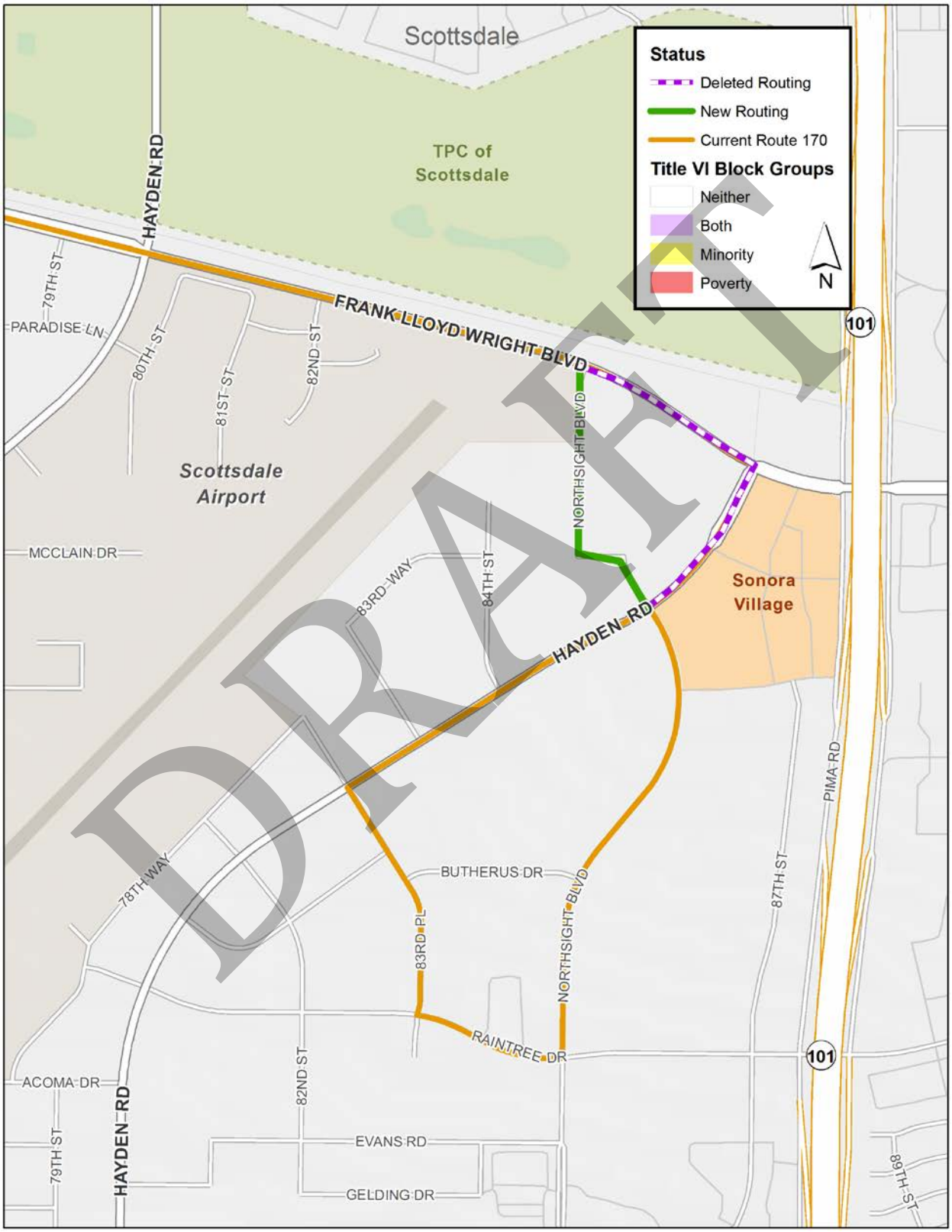


Figure 3: October 2016 Service Change Overview (170 Routing Change in Scottsdale)



Public Outreach

The Public Transit Department will use the locally adopted public outreach process for the proposed October 2016 bus service changes, as outlined in the City of Phoenix Public Transit Title VI Program. Staff will solicit public comments on service changes through public outreach events and a formal public hearing. Advertisements for the public meetings will be placed in local newspapers; information will also be posted to the Phoenix Public Transit Department and Valley Metro websites.

The following public hearing has been scheduled to present the proposals to the public:

Public Hearing: May 18, 2016
Open House: 5-5:30 p.m.
Hearing: 5:30-6:15 p.m.
Valley Metro Board Room
101 N. 1st Avenue. 10th Floor
Phoenix, AZ 85003

The public comment period is ongoing until Friday, May 20, 2016.

Outreach events are planned between April 26th and May 10th at Central Station, Ed Pastor Transit Center, Metrocenter, Desert Sky Transit Center, Paradise Valley Mall Transit Center, Sunnyslope Transit Center, and Montebello & 19th Ave Transit Center.

A summary of the October 2016 Service Changes and the Transportation 2050 Bus Service Enhancement Plans will be presented at the following Village Planning Committees in Phoenix:

Village Planning Committees	Date	Village Planning Committees	Date
Encanto	April 4, 2016	Ahwatukee Foothills	April 25, 2016
Laveen	April 11, 2016	Alhambra	April 26, 2016
South Mountain	April 12, 2016	Paradise Valley	May 2, 2016
North Gateway/Rio Vista	April 14, 2016	Camelback East	May 3, 2016
Estrella	April 19, 2016	Desert View	May 3, 2016
North Mountain	April 20, 2016	Central City	May 9, 2016
Deer Valley	April 21, 2016	Maryvale	May 11, 2016

Details about proposed service changes are available online and input can be provided with an online comment card. Comments can also be emailed to input@valleymetro.org or pubtrans@phoenix.gov -or mailed to:

Valley Metro Community Relations
Attn: Service Changes
101 N. 1st Ave., Ste. 1300
Phoenix, AZ 85003

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Step 1 - Magnitude of Service Changes

The first step of Title VI assessment is to measure and document the magnitude of service change being proposed. If a project qualifies as a "major service change" (defined in Major Service Change Equity Evaluation Procedures Manual), the project assessment must include a second step, an evaluation to determine whether those changes have a discriminatory impact on minority and/or low-income populations.

Valley Metro in cooperation with the City of Phoenix Public Transit Department have adopted guidelines to define a major change. Indicators include:

- Adding or Eliminating an entire route
- Expanding or reducing existing route by more than 25% of Weekday route revenue miles
- Expanding or reducing existing route by more than 25% of Saturday route revenue miles
- Expanding or reducing existing route by more than 25% of Sunday route revenue miles
- Expanding or reducing number of route directional miles more than 25%
- A change resulting in a 25% or greater variance from the existing route alignment

By these standards, "major service change" include Routes 12, 13, 51, and 122 for having weekday revenue miles increasing more than 25%, Routes 0, 1, 3, 12, 13, 15, 16, 17, 19, 28, 30, 39, 41, 43, 44, 50, 51, 52, 59, 67, 75, 77, 83, 106, 108, 122, 154, and 186 for having Saturday or Sunday revenue miles increasing more than 25%, and Route 29, 60, and 61 for having Weekday, Saturday or Sunday jurisdictional miles increased more than 25%. These findings are summarized in *Table 2A: Magnitude of Impact- Major Change Indicators by Individual Projects.* Supporting documentation of these findings are included in *Table 2B: Measurement and Comparison of Project Magnitude and Table 2C: Measurement and Comparison of Project Magnitude by Jurisdiction.* These projects will therefore move to the second level of assessment.

Table 2A: Magnitude of Impact- Major Change Indicators by Individual Projects

Route	Add or Eliminate Route	Expanding or reducing existing route by more than 25% of Weekday route revenue miles	Expanding or reducing existing route by more than 25% of Saturday route revenue miles	Expanding or reducing existing route by more than 25% of Sunday route revenue miles	Expanding or reducing number of route directional miles more than 25%	A change resulting in a 25% or greater variance from the existing route alignment	Continue to Step 2 of Assessment
0	-	-	Yes	Yes	-	-	Yes
1	-	-	Yes	Yes	-	-	Yes
3	-	-	Yes	Yes	-	-	Yes
7	-	-	-	-	-	-	No
8	-	-	-	-	-	-	No
10	-	-	-	-	-	-	No

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Table 2A: Magnitude of Impact- Major Change Indicators by Individual Projects

Route	Add or Eliminate Route	Expanding or reducing existing route by more than 25% of Weekday route revenue miles	Expanding or reducing existing route by more than 25% of Saturday route revenue miles	Expanding or reducing existing route by more than 25% of Sunday route revenue miles	Expanding or reducing number of route directional miles more than 25%	A change resulting in a 25% or greater variance from the existing route alignment	Continue to Step 2 of Assessment
12	-	Yes	Yes	Yes	-	-	Yes
13	-	Yes	Yes	Yes	-	-	Yes
15	-	-	Yes	Yes	-	-	Yes
16	-	-	Yes	Yes	-	-	Yes
17	-	-	-	Yes	-	-	Yes
19	-	-	Yes	Yes	-	-	Yes
27	-	-	-	-	-	-	No
28	-	-	Yes	Yes	-	-	Yes
29	-	-	In Phoenix	In Phoenix	-	-	Yes
30	-	-	Yes	-	-	-	Yes
32	-	-	-	-	-	-	No
35	-	-	-	-	-	-	No
39	-	-	Yes	Yes	-	-	Yes
41	-	-	Yes	Yes	-	-	Yes
43	-	-	Yes	Yes	-	-	Yes
44	-	-	Yes	Yes	-	-	Yes
45	-	-	-	-	-	-	No
50	-	-	Yes	Yes	-	-	Yes
51	-	Yes	Yes	Yes	-	-	Yes
52	-	-	Yes	Yes	-	-	Yes
56	-	-	-	-	-	-	No
59	-	-	Yes	Yes	-	-	Yes
60	-	In Phoenix	-	-	-	-	Yes
61	-	-	In Phoenix	-	-	-	Yes
67	-	-	Yes	Yes	-	-	Yes
70	-	-	-	-	-	-	No
75	-	-	Yes	Yes	-	-	Yes
77	-	-	Yes	Yes	-	-	Yes
80	-	-	-	-	-	-	No
83	-	-	Yes	Yes	-	-	Yes
90	-	-	-	-	-	-	No
106	-	-	Yes	Yes	-	-	Yes

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Table 2A: Magnitude of Impact- Major Change Indicators by Individual Projects

Route	Add or Eliminate Route	Expanding or reducing existing route by more than 25% of Weekday route revenue miles	Expanding or reducing existing route by more than 25% of Saturday route revenue miles	Expanding or reducing existing route by more than 25% of Sunday route revenue miles	Expanding or reducing number of route directional miles more than 25%	A change resulting in a 25% or greater variance from the existing route alignment	Continue to Step 2 of Assessment
108	-	-	-	Yes	-	-	Yes
122	-	Yes	Yes	Yes	-	-	Yes
138	-	-	-	-	-	-	No
154	-	-	Yes	Yes	-	-	Yes
170	-	-	-	-	-	-	No
186	-	-	Yes	Yes	-	-	Yes

Table 2B: Measurement and Comparison of Project Magnitude

	Revenue Miles								
	Existing Service			Proposed Service			% Difference		
Route	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
0	1,882.9	868.3	868.3	2,059.1	1,101.4	1,101.4	9.4%	26.8%	26.8%
1	545.5	237.3	237.3	601.2	513.9	513.9	10.2%	116.5%	116.5%
3	2,177.1	1,057.0	768.8	2,365.4	1,441.2	1,199.3	8.6%	36.3%	56.0%
7	2,307.9	1,562.1	1,562.1	2,629.3	1,875.2	1,875.2	13.9%	20.0%	20.0%
8	1,101.7	955.7	955.7	1,279.8	1,122.0	1,122.2	16.2%	17.4%	17.4%
10	279.2	242.2	242.2	316.2	283.3	262.8	13.2%	17.0%	8.5%
12	559.6	329.2	329.2	812.0	705.8	702.2	45.1%	114.4%	113.3%
13	706.2	365.3	365.3	925.3	827.9	827.9	31.0%	126.7%	126.7%
15	439.9	194.1	194.1	478.7	414.0	414.0	8.8%	113.3%	113.3%
16	1,819.3	1,018.2	1,018.2	2,042.3	1,594.5	1,594.5	12.3%	56.6%	56.6%
17	2,867.6	1,410.4	1,158.3	3,094.6	1,667.7	1,462.0	7.9%	18.2%	26.2%
19	2,791.4	1,290.3	1,204.3	3,033.1	1,716.3	1,716.3	8.7%	33.0%	42.5%
27	1,474.6	1,288.2	1,288.2	1,686.5	1,528.8	1,528.8	14.4%	18.7%	18.7%
28	462.0	200.9	200.9	508.9	428.0	428.0	10.2%	113.1%	113.1%
29	2,707.4	1,190.5	1,190.5	2,983.6	1,456.7	1,456.7	10.2%	22.4%	22.4%
30	1,941.6	1,124.1	363.5	2,044.3	1,453.1	390.8	5.3%	29.3%	7.5%
32	438.2	386.6	386.6	502.6	444.2	425.3	14.7%	14.9%	10.0%
35	2,325.0	1,581.7	1,581.7	2,600.8	1,951.7	1,951.7	11.9%	23.4%	23.4%
39	424.4	174.8	174.8	461.8	399.4	399.4	8.8%	128.6%	128.6%
41	2,405.0	1,248.7	1,248.7	2,711.8	1,561.4	1,561.4	12.8%	25.0%	25.0%

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Table 2B: Measurement and Comparison of Project Magnitude

	Revenue Miles								
	Existing Service			Proposed Service			% Difference		
Route	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
43	1,017.1	478.6	478.6	1,200.5	1,032.0	1,032.0	18.0%	115.6%	115.6%
44	1,203.9	741.1	741.1	1,449.8	1,271.8	1,271.8	20.4%	71.6%	71.6%
45	2,272.6	1,372.2	797.6	2,363.5	1,456.5	811.6	4.0%	6.1%	1.8%
50	2,143.9	1,088.6	1,088.6	2,400.7	1,485.4	1,485.4	12.0%	36.5%	36.5%
51	746.9	380.1	380.1	1,031.7	938.2	938.2	38.1%	146.8%	146.8%
52	570.5	268.5	268.7	620.8	536.9	536.9	8.8%	100.0%	99.8%
56	1,153.7	961.4	898.8	1,189.8	1,021.5	934.9	3.1%	6.3%	4.0%
59	1,094.5	538.7	538.7	1,164.2	722.3	722.3	6.4%	34.1%	34.1%
60	812.8	577.7	577.7	921.7	645.7	645.7	13.4%	11.8%	11.8%
61	2,740.2	1,896.3	1,796.0	2,869.8	2,089.0	1,912.5	4.7%	10.2%	6.5%
67	1,066.7	503.5	473.5	1,159.4	735.4	735.4	8.7%	46.1%	55.3%
70	2,563.3	1,413.6	1,413.6	2,822.4	1,670.2	1,670.2	10.1%	18.2%	18.2%
75	473.2	229.4	229.4	559.2	487.5	487.5	18.2%	112.5%	112.5%
77	1,454.9	808.7	729.3	1,659.7	1,510.1	1,325.3	14.1%	86.7%	81.7%
80	1,384.1	1,043.8	1,043.8	1,607.5	1,262.9	1,262.9	16.1%	21.0%	21.0%
83	363.2	176.1	176.1	429.2	374.2	374.2	18.2%	112.5%	112.5%
90	1,151.0	982.4	982.4	1,383.2	1,120.3	1,120.3	20.2%	14.0%	14.0%
106	1,162.4	608.3	474.9	1,245.9	780.7	645.0	7.2%	28.3%	35.8%
108	1,631.0	756.9	695.1	1,668.0	996.3	939.1	2.3%	31.6%	35.1%
122	128.6	112.9	112.9	289.4	257.3	257.3	125.0%	127.9%	127.9%
138	1,475.1	995.9	995.9	1,619.3	1,222.4	1,222.4	9.8%	22.7%	22.7%
154	1,112.3	523.4	523.4	1,222.5	1,007.2	1,007.2	9.9%	92.4%	92.4%
170	1,415.3	1,118.4	1,118.4	1,582.4	1,291.5	1,291.5	11.8%	15.5%	15.5%
186	1,239.2	631	631	1,370.6	1,178.5	1,178.5	10.6%	86.8%	86.8%

Major Decrease

Major Increase

	Route Directional Miles				Route Directional Miles		
Route	Current Mile	Proposed Mile	Difference	**Route**	Current Mile	Proposed Mile	Difference
0	35.8	35.8	-	**45**	62.2	62.2	-
1	15.8	15.8	-	**50**	45.3	45.4	0.3%
3	53.3	53.3	-	**51**	27.1	27.1	-
7	53.9	53.9	-	**52**	16.8	16.8	-
8	32.4	32.4	-	**56**	29.3	29.3	-

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	Route Directional Miles				Route Directional Miles		
Route	Current Mile	Proposed Mile	Difference	**Route**	Current Mile	Proposed Mile	Difference
10	8.2	8.2	-	**59**	33.7	33.7	-
12	21.9	21.9	-	**60**	25.8	25.8	-
13	24.4	24.4	-	**61**	78.5	78.5	-
15	12.9	12.9	-	**67**	33.9	33.9	-
16	46.6	46.6	-	**70**	73.4	73.4	-
17	62.9	62.9	-	**75**	14.3	14.3	-
19	54.4	54.4	-	**77**	58.7	58.7	-
27	47.6	47.6	-	**80**	54.4	54.4	-
28	13.4	13.4	-	**83**	11.0	11.0	-
29	45.4	45.4	-	**90**	38.8	38.8	-
30	55.9	55.9	-	**106**	40.5	40.5	-
32	24.9	24.9	-	**108**	61.2	61.2	-
35	55.5	55.5	-	**122**	8.0	8.0	-
39	12.5	12.5	-	**138**	44.7	44.7	-
41	45.5	45.5	-	**154**	32.7	32.7	-
43	29.9	29.9	-	**170**	44.5	44.3	-0.5%
44	37.1	37.1	-	**186**	42.1	42.1	-

Major Decrease

Major Increase

Table 2C: Measurement and Comparison of Project Magnitude by Jurisdiction

Route 1		**Phoenix**	**Tempe**
Current	Weekday	521.5	24.0
Route 1	Saturday	226.9	10.4
	Sunday	226.9	10.4
Proposed	Weekday	574.8	26.5
Route 1	Saturday	491.2	22.6
	Sunday	491.2	22.6
% Difference	Weekday	10%	10%
Route 1	Saturday	**117%**	**116%**
	Sunday	**117%**	**116%**

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Route 3		Avondale	Goodyear	Phoenix	Tolleson
Current	Weekday	301.7	4.2	1669.1	202.1
Route 3	Saturday	150.9	2.1	803.0	101.0
	Sunday			753.7	15.1
Proposed	Weekday	301.7	4.2	1849.4	210.1
Route 3	Saturday	150.9	2.1	1166.2	122.1
	Sunday			1163.1	36.1
% Difference	Weekday	0%	0%	11%	4%
Route 3	Saturday	0%	0%	**45%**	21%
	Sunday			**54%**	**140%**

Route 17		Avondale	Goodyear	Phoenix	Scottsdale	Tolleson
Current	Weekday	238.7	179.4	2112.5	277.6	59.4
Route 17	Saturday	118.5	76.6	1014.4	173.1	27.7
	Sunday			985.1	173.1	0.0
Proposed	Weekday	253.4	164.6	2316.7	280.6	79.2
Route 17	Saturday	114.0	74.1	1239.1	173.1	67.3
	Sunday			1221.5	173.1	67.3
% Difference	Weekday	6%	-8%	10%	1%	**33%**
Route 17	Saturday	-4%	-3%	22%	0%	**143%**
	Sunday			24%	0%	

Route 29		Phoenix	Scottsdale
Current	Weekday	2302.0	405.4
Route 29	Saturday	966.6	224.0
	Sunday	966.6	224.0
Proposed	Weekday	2578.1	405.4
Route 29	Saturday	1232.8	224.0
	Sunday	1232.8	224.0
% Difference	Weekday	12%	0%
Route 29	Saturday	**28%**	0%
	Sunday	**28%**	0%

Route 30		Mesa	Phoenix	Tempe
Current	Weekday	1073.8	422.8	445.0
Route 30	Saturday	536.2	195.7	392.2
	Sunday		195.7	167.8
Proposed	Weekday	1073.8	517.3	453.3
Route 30	Saturday	536.2	498.5	418.4
	Sunday		220.6	170.2
% Difference	Weekday	0%	22%	2%
Route 30	Saturday	0%	**155%**	7%
	Sunday		13%	1%

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Route 41		Avondale	Phoenix	Scottsdale
Current	Weekday	15.8	2122.0	267.2
Route 41	Saturday	14.8	1066.3	167.7
	Sunday	14.8	1066.3	167.7
Proposed	Weekday	33.8	2410.8	267.2
Route 41	Saturday	36.9	1356.8	167.7
	Sunday	36.9	1356.8	167.7
% Difference	Weekday	113%	14%	0%
Route 41	Saturday	150%	27%	0%
	Sunday	150%	27%	0%

Route 43		Glendale	Phoenix
Current	Weekday	170.2	846.9
Route 43	Saturday	80.1	398.5
	Sunday	80.1	398.5
Proposed	Weekday	200.3	1000.2
Route 43	Saturday	170.2	861.7
	Sunday	170.2	861.7
% Difference	Weekday	18%	18%
Route 43	Saturday	113%	116%
	Sunday	113%	116%

Route 44		Paradise Valley	Phoenix
Current	Weekday	220.4	983.5
Route 44	Saturday	135.1	605.9
	Sunday	135.1	605.9
Proposed	Weekday	263.5	1186.3
Route 44	Saturday	232.2	1039.6
	Sunday	232.2	1039.6
% Difference	Weekday	20%	21%
Route 44	Saturday	72%	72%
	Sunday	72%	72%

Route 45		Mesa	Phoenix	Tempe
Current	Weekday	1092.3	657.5	522.8
Route 45	Saturday	514.0	461.6	396.9
	Sunday		461.6	336.0
Proposed	Weekday	1096.6	746.2	520.6
Route 45	Saturday	516.1	544.0	396.4
	Sunday		474.2	337.4
% Difference	Weekday	0%	13%	0%
Route 45	Saturday	0%	18%	0%
	Sunday		3%	0%

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Route 50		Glendale	Phoenix	Scottsdale
Current	Weekday	327.6	1741.2	75.1
Route 50	Saturday	144.8	884.0	59.7
	Sunday	144.8	884.0	59.7
Proposed	Weekday	376.1	1957.8	97.9
Route 50	Saturday	242.5	1170.7	77.3
	Sunday	242.5	1170.7	77.3
% Difference	Weekday	15%	12%	30%
Route 50	Saturday	67%	32%	29%
	Sunday	67%	32%	29%

Route 51		Glendale	Phoenix
Current	Weekday	358.3	388.7
Route 51	Saturday	182.1	198.0
	Sunday	182.1	198.0
Proposed	Weekday	494.3	537.3
Route 51	Saturday	448.3	490.0
	Sunday	448.3	490.0
% Difference	Weekday	38%	38%
Route 51	Saturday	146%	147%
	Sunday	146%	147%

Route 56		Chandler	Guadalupe	Phoenix	Scottsdale	Tempe
Current	Weekday	35.3	116.0	198.0	71.1	733.3
Route 56	Saturday	30.4	87.7	194.0	71.1	578.2
	Sunday	29.8	77.5	193.6	71.1	526.8
Proposed	Weekday	41.6	116.0	203.5	71.1	757.7
Route 56	Saturday	41.0	87.7	203.0	71.1	618.7
	Sunday	36.2	77.5	199.0	71.1	551.1
% Difference	Weekday	18%	0%	3%	0%	3%
Route 56	Saturday	35%	0%	5%	0%	7%
	Sunday	21%	0%	3%	0%	5%

Route 59		Glendale	Phoenix
Current	Weekday	771.2	323.4
Route 59	Saturday	379.5	159.2
	Sunday	379.5	159.2
Proposed	Weekday	771.2	393.0
Route 59	Saturday	379.5	343.3
	Sunday	379.5	343.3
% Difference	Weekday	0%	22%
Route 59	Saturday	0%	116%
	Sunday	0%	116%

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Route 60		County Areas	Glendale	Phoenix
Current	Weekday	7.8	376.0	428.9
Route 60	Saturday	3.7	179.1	394.9
	Sunday	3.7	179.1	394.9
Proposed	Weekday	7.8	376.0	537.8
Route 60	Saturday	3.7	179.1	462.9
	Sunday	3.7	179.1	462.9
% Difference	Weekday	0%	0%	**25%**
Route 60	Saturday	0%	0%	17%
	Sunday	0%	0%	17%

Route 61		Mesa	Phoenix	Tempe
Current	Weekday	1219.1	931.1	572.6
Route 61	Saturday	869.0	597.0	430.3
	Sunday	820.6	597.0	378.4
Proposed	Weekday	1219.1	1074.4	576.3
Route 61	Saturday	869.0	790.7	429.4
	Sunday	820.6	709.4	382.5
% Difference	Weekday	0%	15%	1%
Route 61	Saturday	0%	**32%**	0%
	Sunday	0%	19%	1%

Route 67		Glendale	Peoria	Phoenix
Current	Weekday	558.4	113.4	394.9
Route 67	Saturday	256.1	53.1	194.3
	Sunday	256.1	53.1	194.3
Proposed	Weekday	558.4	113.4	487.6
Route 67	Saturday	256.1	53.1	426.2
	Sunday	256.1	53.1	426.2
% Difference	Weekday	0%	0%	23%
Route 67	Saturday	0%	0%	**119%**
	Sunday	0%	0%	**119%**

Route 70		Glendale	Phoenix
Current	Weekday	841.8	1721.5
Route 70	Saturday	365.7	1047.9
	Sunday	365.7	1047.9
Proposed	Weekday	841.8	1980.6
Route 70	Saturday	365.7	1304.5
	Sunday	365.7	1304.5
% Difference	Weekday	0%	15%
Route 70	Saturday	0%	24%
	Sunday	0%	24%

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Route 77		Mesa	Phoenix	Tempe
	Weekday	86.1	987.9	380.8
Route 77	Saturday	44.4	418.1	346.2
	Sunday		418.1	311.2
Proposed	Weekday	86.1	1183.0	390.5
Route 77	Saturday	44.4	1087.1	378.7
	Sunday		989.5	335.7
% Difference	Weekday	0%	20%	3%
Route 77	Saturday	0%	160%	9%
	Sunday		137%	8%

Route 80		Glendale	Paradise Valley	Phoenix	Scottsdale
Current	Weekday	146.0	24.5	847.5	366.2
Route 80	Saturday	65.4	20.2	730.0	228.2
	Sunday	65.4	20.2	730.0	228.2
Proposed	Weekday	146.0	28.8	1013.1	419.6
Route 80	Saturday	65.4	25.2	887.0	285.2
	Sunday	65.4	25.2	887.0	285.2
% Difference	Weekday	0%	18%	20%	15%
Route 80	Saturday	0%	25%	22%	25%
	Sunday	0%	25%	22%	25%

Route 90		Glendale	Phoenix
Current	Weekday	205.9	945.2
Route 90	Saturday	96.5	885.9
	Sunday	96.5	885.9
Proposed	Weekday	205.9	1177.3
Route 90	Saturday	96.5	1023.8
	Sunday	96.5	1023.8
% Difference	Weekday	0%	25%
Route 90	Saturday	0%	16%
	Sunday	0%	16%

Route 106		County Areas	Glendale	Peoria	Phoenix	Youngtown
Current	Weekday	153.6	184.0	248.7	554.1	22.1
Route 106	Saturday		89.0	121.2	398.1	
	Sunday		83.1	0.0	391.8	
Proposed	Weekday	153.6	184.0	248.7	637.6	22.1
Route 106	Saturday		89.0	121.2	570.5	
	Sunday		83.1	0.0	561.9	
% Difference	Weekday	0%	0%	0%	15%	0%
Route 106	Saturday		0%	0%	43%	
	Sunday		0%		43%	

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Route 108		Chandler	Gilbert	Mesa	Phoenix	Tempe
Current	Weekday	257.9	629.1	109.3	246.1	388.6
Route 108	Saturday	116.5	284.1	38.9	124.7	192.7
	Sunday	108.1	263.8	36.1	114.0	173.0
Proposed	Weekday	257.9	629.1	109.3	278.8	392.8
Route 108	Saturday	116.5	284.1	38.9	242.1	206.7
	Sunday	108.1	263.8	36.1	242.1	188.6
% Difference	Weekday	0%	0%	0%	13%	1%
Route 108	Saturday	0%	0%	0%	**94%**	7%
	Sunday	0%	0%	0%	**112%**	9%

Route 138		County Areas	Glendale	Peoria	Phoenix
Current	Weekday	127.0	133.6	222.2	992.3
Route 138	Saturday	57.7	60.7	101.0	776.5
	Sunday	57.7	60.7	101.0	776.5
Proposed	Weekday	127.0	133.6	222.2	1136.6
Route 138	Saturday	57.7	60.7	101.0	1003.0
	Sunday	57.7	60.7	101.0	1003.0
% Difference	Weekday	0%	0%	0%	15%
Route 138	Saturday	0%	0%	0%	**29%**
	Sunday	0%	0%	0%	**29%**

Route 154		Phoenix	Scottsdale
Current	Weekday	994.2	118.2
Route 154	Saturday	467.8	55.6
	Sunday	467.8	55.6
Proposed	Weekday	1092.6	129.9
Route 154	Saturday	950.3	56.9
	Sunday	950.3	56.9
% Difference	Weekday	10%	10%
Route 154	Saturday	**103%**	2%
	Sunday	**103%**	2%

Route 170		Glendale	Peoria	Phoenix	Scottsdale
Current	Weekday	225.5	26.0	955.5	208.3
Route 170	Saturday	97.3	11.5	829.1	180.5
	Sunday	97.3	11.5	829.1	180.5
Proposed	Weekday	225.5	26.0	1085.9	200.6
Route 170	Saturday	97.3	11.5	971.5	173.9
	Sunday	97.3	11.5	971.5	173.9
% Difference	Weekday	0%	0%	14%	-4%
Route 170	Saturday	0%	0%	17%	-4%
	Sunday	0%	0%	17%	-4%

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Route 186		Glendale	Phoenix
Current	Weekday	162.4	1076.8
Route 186	Saturday	147.5	483.3
	Sunday	147.5	483.3
Proposed	Weekday	162.4	1208.2
Route 186	Saturday	147.5	1031.0
	Sunday	147.5	1031.0
% Difference	Weekday	0%	12%
Route 186	Saturday	0%	**113%**
	Sunday	0%	**113%**

Step 2 - Impacts on Title VI Populations

To determine if a proposed service change would disproportionately impact low-income and/or minority populations, we compared the percentage of the low-income/minority population within the service area of the bus route to the regional average.

The service area is defined as ½ mile from the bus route segments affected. The regional average is based on the statistics for Maricopa County. The dataset used to calculate the percentages is US Census American Community Survey 2010-2014 5 Year Estimate. The geographic unit of measurement in the dataset is Census Block Groups.

Census Block Groups with higher percentage of low-income population compare to the regional average are categorized as low-income census block groups. Census Block Groups with higher percentage of minority population compared to the regional average are categorized as minority census block group. If the service area of a major service change route is within low-income and/or minority census block groups, the project will require additional assessment explaining mitigation or mitigating factors to justify the proposed change.

Percentages of Low-Income Households and Minority Population for the region and the route segments with major impacts are summarized below in *Table 3: Project and Regional Service Area Low-Income and Minority Population Average*

Table 3: Project and Regional Service Area Low-Income and Minority Population Average

	Percent Low-Income Households	Percent Minority Population
Regional Average	14.4%	44.2%

1/2 Mile from route segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
0	23.0%	59.6%
1	37.8%	73.3%

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1/2 Mile from route segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
3	40.1%	82.0%
7	22.6%	53.4%
8	23.3%	59.9%
10	39.2%	78.0%
12	26.0%	54.2%
13	47.4%	89.9%
15	28.9%	61.6%
16	21.3%	55.8%
17	31.0%	81.8%
19	26.7%	61.1%
27	25.3%	58.7%
28	18.3%	81.4%
29	27.3%	76.2%
30	24.9%	77.5%
32	24.7%	65.9%
35	23.5%	61.4%
39	10.0%	28.1%
41	27.7%	71.9%
43	24.7%	61.4%
44	10.9%	33.6%
45	37.8%	91.2%
50	24.6%	63.1%
51	24.9%	66.8%
52	33.6%	89.7%
56	8.8%	51.3%
59	36.3%	88.0%
60	23.7%	58.1%
61	26.1%	85.9%
67	31.7%	90.4%
70	22.5%	59.6%
75	25.4%	85.9%
77	16.8%	79.2%
80	16.1%	39.3%
83	26.0%	84.4%
90	21.1%	49.5%
106	24.6%	55.9%
108	7.9%	40.1%

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1/2 Mile from route segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
122	13.8%	40.9%
138	12.8%	29.2%
154	13.9%	33.8%
170	13.9%	35.1%
186	10.5%	28.7%

Data Source: US Census American Community Survey 2010-2014 5 Year Estimate

As indicated in Table 3, 38 routes that qualified as having a major impact in the October 2016 proposed service change are routes serving a higher percentage of low-income households or a higher percentage of minority population than the regional average. Further assessment on the potential of discrimination against minority or low-income population is not necessary due to the fact that the proposed service improvement is applied to all local bus service in Phoenix. The goal of the service improvement is to establish an uniform span of service and minimum service frequency of at least every 30 minutes. Routes that qualified as having a major service change are routes that currently have less than 30 minute frequency on weekday, Saturdays, or Sundays. These routes will see a greater magnitude of change in revenue miles versus other routes that already have frequencies of at least 30 minutes.

Most routes in Phoenix would have the span of service increase to 4AM to midnight on weekdays and 5AM to 10PM on Saturday and Sunday. Routes with lower ridership (1, 12, 15, 28, 39, 52, and 122) would only increase to 4AM to 11PM on weekdays and 5AM to 9PM on Saturday and Sunday. The difference in span of service is due to manpower constraints from the operating contractor. The Public Transit Department plans to further improve the span of service to match light rail operation in April 2017. At that time all routes will have an uniform span of service in Phoenix.

Routing changes on Routes 50 and 170 (shown in Figure 2 and 3) did not result in a 25% or greater change in revenue miles, directional miles, or alignment in Scottsdale. As a result, no further assessment on the routing change is required.

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Title VI Analysis

City of Phoenix
Proposed April 2017 Service Changes

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City of Phoenix Public Transit Department

Summary

The City of Phoenix Public Transit Department is focused on improving the efficiency of Phoenix's transit service to best serve our passengers' needs. The proposed April 2017 bus service changes were developed by staff using the best methods and information available, including current ridership trends and customer feedback. They may be modified following review of feedback received during the public process outlined below. Any service cost increases will be funded through Transportation 2050, the dedicated Phoenix transportation tax.

The Public Transit Department regularly reviews routes to determine if modifications can be made to improve service. The proposed April 2017 service changes are as follows:

- Improve local bus service span in Phoenix to match Light Rail.
- Extend Route 122 to serve ASU West Campus and the 19th Ave/Dunlap Light Rail Station.
- Modify Route 39 to serve Paradise Valley Mall and Dreamy Draw Park-and-Ride.
- Modify the southern end of Route 70 to terminate at the 24th St/Baseline Park-and-Ride.
- Scottsdale: Extend Route 50 to serve Drinkwater Blvd & Stetson Drive in the westbound direction and improve service span.

The following assessment is based on service change policies developed by the City of Phoenix Public Transit Department and Valley Metro. Attachment I of the City of Phoenix Public Transit Title VI Program describes the City of Phoenix Major Service Change Equity Evaluation Procedures that apply to this analysis. Details describing the intent of this analysis and evaluation methods can be found in that document. The public input process, described in Section 3 of the City of Phoenix Public Transit Title VI Program, begins with this proposal from city staff. The public will have an opportunity to provide feedback through public open houses, citizen outreach efforts, social media, boards and commissions, the Citizens Transportation Commission, the Transportation and Infrastructure Subcommittee of the City Council, and the City Council before final approval. The public comment period will be open for 30 days following the posting of this proposal.

The City of Phoenix Public Transit Title VI Program is available by contacting Kristy Ruiz, City of Phoenix Title VI and ADA Coordinator, kristy.ruiz@phoenix.gov or at 602.534.3026.

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Background

Title VI of the Civil Rights Acts of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance. Federal law requires the City of Phoenix to evaluate service changes and proposed improvements at the planning and programming stages to determine whether those changes have a discriminatory impact. This process will be used to evaluate bus services in an objective manner to identify the potential for adverse, disproportionately high, or disparate impacts to minority and/or low income populations. Proposed changes and impacts will be assessed on a route level and by jurisdiction.

Step 1 - Magnitude of Service Change

The first step of the Title VI assessment is to measure and document the magnitude of service change being proposed to determine if a project qualifies as a "major service change" (defined in Major Service Change Equity Evaluation Procedures Manual).

Valley Metro in cooperation with the City of Phoenix Public Transit Department have adopted guidelines to define a major change. Indicators include:

- Adding or Eliminating an entire route
- Expanding or reducing existing revenue miles on a route by more than 25% on any day of the week
- Expanding or reducing number of route directional miles more than 25%
- A change resulting in a 25% or greater variance from the existing route alignment

All projects that are determined to be a "major service change" will move to step 2.

Step 2 - Impacts on Title VI Populations

The second step of the Title VI assessment will evaluate each major service change to determine if it would have a disproportionate impact on low-income and/or minority populations. To do this, the City of Phoenix will compare the demographics of the populations within ½ mile of affected service to the demographics of Maricopa County as a whole.

Maricopa County	
Minority	Low-Income
44.2%	14.4%

The dataset used to calculate the percentages is US Census American Community Survey 2010-2014 5 Year Estimate. The geographic unit of measurement in the dataset is Census Block Groups. Census Block Groups with higher percentage of minority/low-income populations compared to the regional average are categorized as minority/low-income census block groups.

If the service area of a major service change route is within low-income and/or minority census block groups, the project will require additional assessment explaining mitigation or mitigating factors to justify the proposed change.

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Proposed Change: Phoenix Span Improvement

The City of Phoenix is proposing to increase the service span of local bus routes within the city to match the hours of Light Rail, as promised to the public in Proposition 104. As of October 24th, 2016, most local bus services in Phoenix will operate Monday through Friday from 4AM to midnight, and on Saturday and Sunday from 5AM to 10PM. The proposed April 2017 service change will expand those service hours to all routes and increase Friday and Saturday span of service in Phoenix to 2AM, and to 11PM on Sunday. A map of the affected routes is provided below in Figure 1.

Service span on Dial-A-Ride in Phoenix will also be improved to match local bus service hours.

Proposed Changes by Route:

- Route 0 – Central Ave: In Phoenix, from Dobbins Rd. to Dunlap Ave., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 1 – Washington/Jefferson St: In Phoenix, from Priest Dr. to Central Station, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 3 – Van Buren St: In Phoenix, from 83rd Ave. to Galvin Pkwy, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 7 – 7th St: In Phoenix, from Deer Valley Rd. to Dobbins Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 8 – 7th Ave: In Phoenix, from Sunnyslope Transit Center to Baseline Rd, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 10 – Roosevelt St: In Phoenix, from Central Ave and Van Buren St to 32nd St and Roosevelt St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 12- 12th St: In Phoenix, from Sunnyslope Transit Center to 12th St. and Jefferson St., extend the span of service to midnight Monday through Thursday, to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 13 – Buckeye Rd: In Phoenix, from 75th Ave to Sky Harbor Terminal #2, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 15 – 15th Ave: In Phoenix, from Pima St. to Montebello Ave., extend the span of service to midnight Monday through Thursday, to 2AM on Friday and Saturday, and to 11PM on Sunday.
- Route 16 – 16th St: In Phoenix, from Dobbins Rd. to Paradise Valley Community College, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

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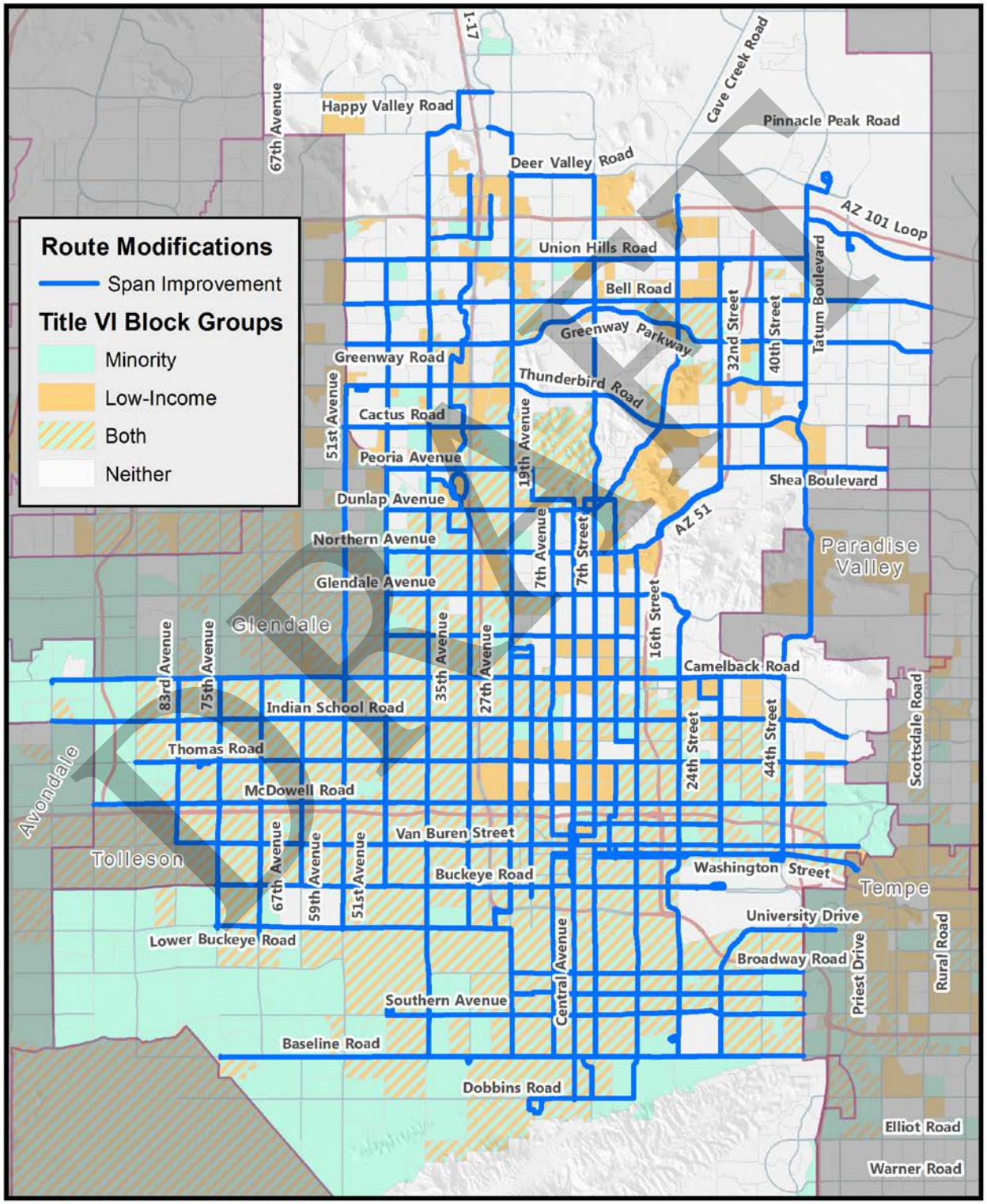
Proposed April 2017 Service Changes: Figure 1

Phoenix Span Increase



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- Route 17 – McDowell Rd: In Phoenix, from 99th Ave. to 52nd St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 19 – 19th Ave: In Phoenix, from Baseline Rd. to Pinnacle Peak Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 27 – 27th Ave: In Phoenix, from Lower Buckeye Rd. to Rose Garden Lane., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 28 – Lower Buckeye Rd: In Phoenix, from 22nd Ave. to 75th Ave., extend the span of service to midnight Monday through Thursday, to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 29 – Thomas Rd: In Phoenix, from 91st Ave. to 56th St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 30 – University Drive: From South Mountain Community College to 52nd St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 32 – 32nd St: In Phoenix, from Camelback Rd. to Phoenix Sky Train Station, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 35 – 35th Ave: In Phoenix, from Baseline Rd. to Happy Valley Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 39 – 40th St: In Phoenix, from Shea Blvd. to Paradise Valley Community College, extend the span of service to midnight Monday through Thursday, to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 41 – Indian School Rd: From 107 Ave. to 56th St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 43 - 43rd Ave: From Buckeye Rd. to Union Hills Dr., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 44 – 44th St: In Phoenix and parts of Paradise Valley, From Phoenix Sky Train to Marriott Desert Ridge Resort, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 45 – Broadway Rd: In Phoenix, from 19th Ave. to 48th St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 50 – Camelback Rd: In Phoenix, from 107th Ave. to 44th St, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 51 – 51st Ave: From Lower Buckeye Rd. to ASU West Campus, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

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- Route 52 – Roeser Rd: In Phoenix, from 19th Ave. to 48th St., extend the span of service to midnight Monday through Thursday, to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 59 – 59th Ave: In Phoenix, from Buckeye Rd. to Camelback Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 60 – Bethany Home Rd: In Phoenix, from 43rd Ave. to 16th St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 61 – In Phoenix, from 43rd Ave. to 48th St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 67 – 67th Ave: In Phoenix, from Lower Buckeye Rd. to Camelback Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 70 – Glendale Ave/24th St: In Phoenix, from 43rd Ave. to Baseline Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 75 – 75th Ave: In Phoenix, from Lower Buckeye Rd. to Camelback Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 77 – Baseline Rd: In Phoenix, from 75th Ave. to 48th St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 80 – Northern Ave: In Phoenix, from 43rd Ave. to 64th Street., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 83 – 83rd Ave: In Phoenix, from Van Buren St. to Camelback Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 90 – Dunlap/Cave Creek Rd: In Phoenix, from 43rd Ave. to Rose Garden Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 106 – Peoria Ave: In Phoenix, from 43rd Ave. to Sunnyslope Transit Center, extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 122 – Cactus Rd: In Phoenix, from 51st Ave to 19th Ave, extend the span of service to midnight Monday through Thursday, to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 138 – Thunderbird Rd: In Phoenix, from ASU West Campus. to 32nd St., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 154 – Greenway Rd: In Phoenix, from 51st Ave. to Scottsdale Rd, extend the span of service to midnight Monday through Thursday, to 2AM on Friday and Saturday, and to 11PM on Sunday.

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- Route 170 – Bell Rd: In Phoenix, from 51st Ave. to Scottsdale Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

- Route 186 – Union Hills Drive: In Phoenix, from 51st Ave. to Scottsdale Rd., extend the span of service to 2AM on Friday and Saturday, and to 11PM on Sunday.

Step 1 – Magnitude of Service Change

This proposed change would not add or eliminate any route or change the alignment of any route so the magnitude of the changes will be determined only by change in revenue miles. Major changes are shaded:

		Revenue Miles: Phoenix Span Increase							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
0	Phoenix	+49.1	+176.3	+286.2	+95.4	2%	9%	26%	9%
1	Phoenix	+45.4	+105.9	+167.0	+76.3	8%	18%	34%	16%
1	Tempe	+2.1	+4.9	+7.7	+3.5	8%	18%	34%	16%
3	Phoenix	+92.1	+218.0	+266.9	+79.2	5%	12%	23%	7%
3	Tolleson	+6.0	+10.0	+9.0	+2.0	3%	5%	7%	6%
7	Phoenix	+134.7	+350.2	+484.8	+161.6	5%	13%	26%	9%
8	Phoenix	+97.2	+194.5	+291.6	+97.2	8%	15%	26%	9%
10	Phoenix	+16.4	+49.3	+73.9	+24.6	5%	15%	26%	9%
12	Phoenix	+87.8	+175.6	+241.4	+109.7	11%	22%	34%	16%
13	Phoenix	+85.1	+170.5	+219.2	+73.1	9%	18%	26%	9%
15	Phoenix	+51.8	+103.5	+142.3	+64.7	11%	22%	34%	16%
16	Phoenix	+160.6	+343.7	+412.0	+137.3	8%	16%	26%	9%
17	Phoenix	+48.5	+180.7	+297.4	+99.1	2%	8%	24%	8%
17	Tolleson	+4.0	+11.9	+17.8	+5.9	5%	15%	26%	9%
19	Phoenix	+98.3	+294.9	+442.3	+147.4	3%	10%	26%	9%
27	Phoenix	+131.0	+305.7	+393.1	+131.0	8%	18%	26%	9%
28	Phoenix	+40.2	+93.7	+147.3	+67.0	8%	18%	34%	16%
29	Phoenix	+35.1	+175.3	+315.6	+105.2	1%	7%	26%	9%
30	Phoenix	-	+50.5	+50.5	+19.1	0%	10%	10%	9%
32	Phoenix	+25.8	+77.3	+116.0	+38.7	5%	14%	26%	9%
35	Phoenix	+139.0	+360.9	+471.9	+139.0	5%	14%	24%	7%
39	Phoenix	+49.9	+99.9	+137.3	+62.4	11%	22%	34%	16%
41	Avondale	+2.1	+6.3	+9.5	+2.1	6%	18%	26%	6%
41	Phoenix	+75.2	+224.0	+334.7	+93.5	3%	9%	25%	7%
43	Glendale	+5.0	+25.0	+45.1	+15.0	2%	13%	26%	9%
43	Phoenix	+39.9	+139.6	+223.7	+74.2	4%	14%	26%	9%
44	Phoenix	+60.6	+181.8	+272.7	+90.9	5%	15%	26%	9%

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		Revenue Miles: Phoenix Span Increase							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
44	Paradise Valley	+13.5	+40.5	+60.8	+20.3	5%	15%	26%	9%
45	Phoenix	+14.0	+63.0	+56.0	+42.0	2%	8%	10%	9%
50	Glendale	+6.9	+34.6	+62.4	+20.8	2%	9%	26%	9%
50	Phoenix	+45.6	+157.9	+252.8	+84.3	2%	8%	22%	7%
51	Glendale	+39.0	+91.1	+117.1	+39.0	8%	18%	26%	9%
51	Phoenix	+42.4	+99.0	+127.3	+42.4	8%	18%	26%	9%
52	Phoenix	+67.1	+134.2	+167.8	+67.1	11%	21%	30%	12%
59	Phoenix	+14.9	+54.7	+89.6	+29.9	4%	13%	26%	9%
60	Phoenix	+20.4	+74.9	+122.5	+40.8	4%	14%	26%	9%
61	Phoenix	+10.0	+80.7	+91.0	+40.5	1%	8%	12%	6%
67	Phoenix	+25.1	+75.2	+112.8	+37.6	5%	15%	26%	9%
70	Phoenix	+37.4	+187.1	+336.8	+112.3	2%	9%	25%	8%
75	Phoenix	+35.9	+93.2	+129.0	+43.0	6%	17%	26%	9%
77	Phoenix	+13.9	+111.5	+125.5	+55.8	1%	9%	12%	6%
80	Phoenix	+25.4	+127.1	+228.9	+76.3	2%	13%	26%	9%
80	Paradise Valley	+0.7	+4.1	+6.5	+2.2	2%	14%	26%	9%
83	Phoenix	+22.0	+66.0	+99.0	+33.0	5%	15%	26%	9%
90	Phoenix	+59.1	+177.2	+265.9	+88.7	5%	15%	26%	9%
106	Phoenix	+41.8	+108.9	+151.0	+50.3	6%	17%	26%	9%
122	Phoenix	+32.2	+64.3	+88.4	+40.2	11%	22%	34%	16%
138	Phoenix	+101.1	+216.6	+259.9	+86.6	9%	19%	26%	9%
154	Phoenix	+102.3	+219.3	+292.4	+117.0	9%	20%	30%	12%
170	Phoenix	+86.0	+200.7	+258.1	+86.0	8%	18%	26%	9%
186	Phoenix	+112.8	+241.7	+322.3	+128.9	9%	20%	30%	12%

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Step 2 – Impacts on Title VI Populations

Most of the affected routes will qualify as having a major service change based on the revenue miles increase on Saturdays. The demographics for every affected route and jurisdiction are provided below. Changes that disproportionately affect Title VI populations are highlighted.

		Affected Population	
Route	City	Minority	Low-Income
0	Phoenix	59.6%	23.0%
1	Phoenix	74.2%	38.5%
1	Tempe	36.5%	18.6%
3	Phoenix	82.1%	40.3%
3	Tolleson	85.9%	27.2%

		Affected Population	
Route	City	Minority	Low-Income
7	Phoenix	53.4%	22.6%
8	Phoenix	59.9%	23.3%
10	Phoenix	78.0%	39.2%
12	Phoenix	54.2%	26.0%
13	Phoenix	89.9%	47.5%

Route	City	Affected Population	
		Minority	Low-Income
15	Phoenix	61.6%	28.9%
16	Phoenix	55.8%	21.3%
17	Phoenix	81.7%	31.4%
17	Tolleson	88.8%	20.6%
19	Phoenix	61.1%	26.7%
27	Phoenix	58.7%	25.3%
28	Phoenix	81.4%	18.3%
29	Phoenix	76.6%	27.5%
30	Phoenix	81.3%	24.4%
32	Phoenix	65.9%	24.7%
35	Phoenix	61.4%	23.5%
39	Phoenix	28.1%	10.0%
41	Avondale	46.3%	3.9%
41	Phoenix	72.1%	27.6%
43	Glendale	59.7%	24.8%
43	Phoenix	61.9%	24.6%
44	Phoenix	34.5%	11.1%
44	Paradise Valley	16.0%	8.3%
45	Phoenix	91.4%	38.0%
50	Glendale	76.2%	28.9%
50	Phoenix	64.7%	25.9%

Route	City	Affected Population	
		Minority	Low-Income
51	Glendale	54.3%	20.4%
51	Phoenix	80.4%	31.2%
52	Phoenix	90.0%	33.8%
59	Phoenix	90.3%	34.7%
60	Phoenix	57.2%	23.1%
61	Phoenix	87.1%	26.7%
67	Phoenix	91.1%	32.7%
70	Phoenix	59.1%	22.6%
75	Phoenix	86.6%	26.5%
77	Phoenix	79.5%	16.8%
80	Phoenix	39.7%	16.6%
80	Paradise Valley	10.4%	8.7%
83	Phoenix	85.0%	26.4%
90	Phoenix	49.1%	21.1%
106	Phoenix	57.1%	25.0%
122	Phoenix	41.2%	14.6%
138	Phoenix	29.2%	12.8%
154	Phoenix	34.1%	14.0%
170	Phoenix	35.3%	14.0%
186	Phoenix	28.8%	10.5%

According to federal guidelines, service increases should benefit Title VI populations. The proposed span increase in Phoenix would be applied to the entire city and benefit mostly minority and low-income populations so no further assessment of discrimination is necessary.

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Proposed Change: Extend Route 122

The City of Phoenix is proposing to extend Route 122 north along 51st Ave to service ASU West Campus at 51st Ave & Thunderbird and south along 19th Ave to the Light Rail Station at 19th Ave & Dunlap. Providing a direct connection to Light Rail and the university would make this route more useful and attract additional ridership. A map of the proposed extensions is provided below in Figure 2.

Step 1 – Magnitude of Service Change

The proposed extensions would result in a change to Route 122's directional route miles and revenue miles. Major changes are shaded:

Directional Route Miles: Route 122 Extensions		% Difference
Existing	8.0	-
Additional to ASU West	3.2	40%
Additional to 19th Ave & Dunlap	3.9	49%
Total Proposed	15.1	89%

		Revenue Miles: Route 122 Extension to ASU West							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
122	Phoenix	+91.7	+100.4	+93.9	+80.8	31%	34%	36%	31%
122	Glendale	+42.2	+46.2	+43.2	+37.2	100%	100%	100%	100%

		Revenue Miles: Route 122 Extension to 19th Avenue & Dunlap							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
122	Phoenix	+172.2	+187.8	+168.1	+144.6	58%	63%	65%	56%

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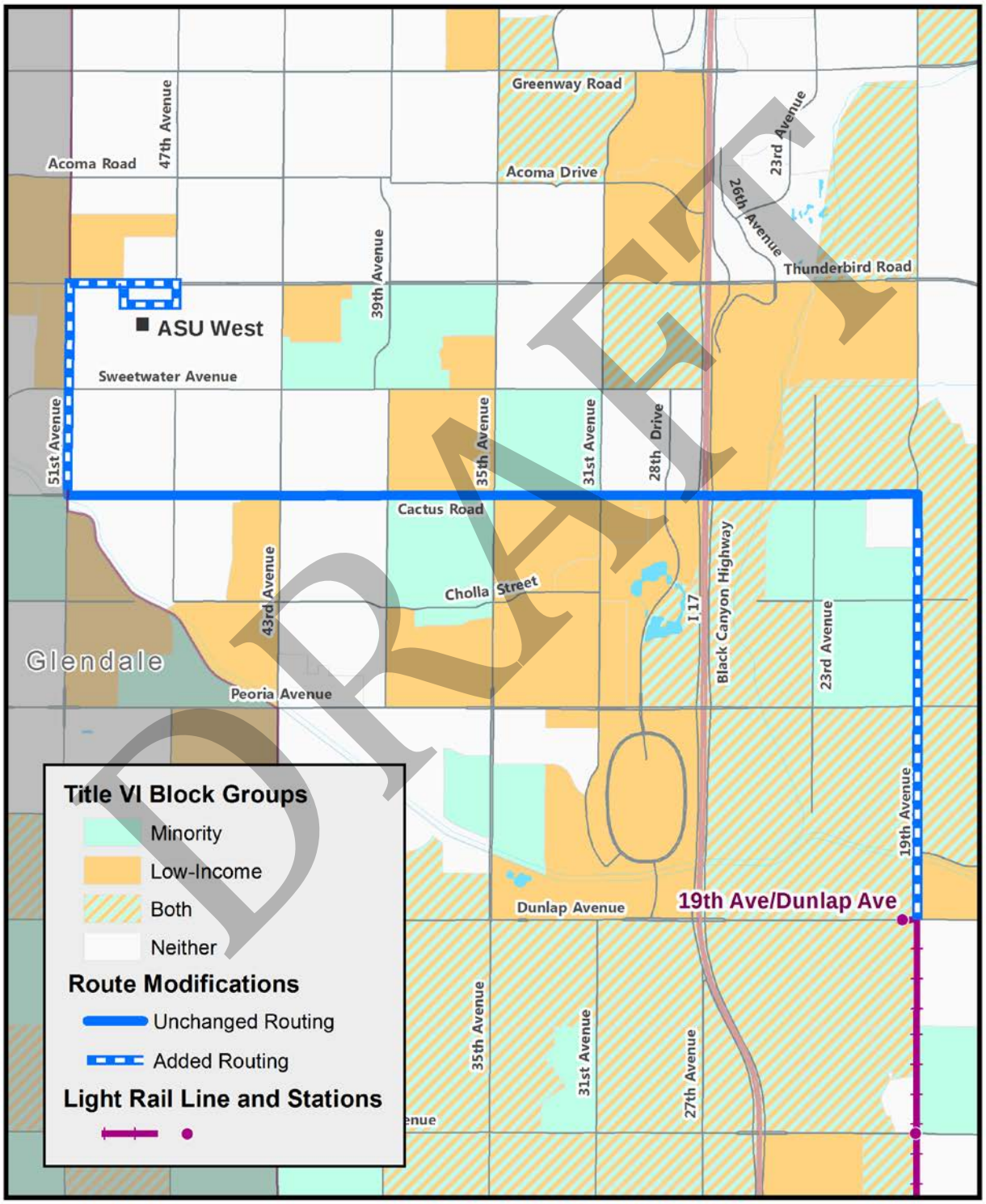
Proposed April 2017 Service Changes: Figure 2

Route 122 Extensions



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Step 2 – Impacts on Title VI Populations

This will be a major change to Route 122. The demographics for each proposed extension by jurisdiction are provided below. Changes that disproportionately affect Title VI populations are highlighted.

Affected Population Extension to ASU West			
Route	City	Minority	Low-Income
122	Phoenix	32.3%	11.9%
122	Glendale	29.3%	12.8%

Affected Population: Extension to 19th Ave & Dunlap			
Route	City	Minority	Low-Income
122	Phoenix	62.0%	26.0%

The proposed extension to 19th Ave & Dunlap would serve areas categorized as Title VI populations, however, the extension to ASU West would not. This change is being proposed in order to make route 122 more useful by the modifying the endpoints to serve activity centers and additional connecting routes. The proposed extension to ASU West is expected to generate substantial ridership due to the concentration of students and employees at this location and the opportunity for riders to transfer to Route 138.

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Proposed Change: Modify and Extend Route 39

The City of Phoenix is proposing to modify Route 39 to serve Paradise Valley Mall and to extend the route west along Shea Blvd to Dreamy Draw Park-and-Ride in order to provide more transfer opportunities to nearby routes and to be more useful to the community. There are two options to serve Paradise Valley Mall: Option 1 would realign the route to travel along Cactus Rd and Thunderbird Rd and eliminate service along a portion of 40th St; Option 2 would service the mall using Cactus Rd in both directions and result in no loss of service. Option 2 is costlier as shown in the change to revenue miles and would add more travel time to existing trips than Option 1. Maps of the proposed modifications are provided below in Figure 3 and Figure 4.

Step 1 – Magnitude of Service Change

The proposed modifications would result in a change to Route 39's directional route miles and revenue miles. Major changes are shaded:

Directional Route Miles: Route 39 Modifications		% Difference
Existing	12.3	-
Extension to Dreamy Draw Park-and-Ride	2.1	17%
Paradise Valley Mall Option 1	4.1	34%
Paradise Valley Mall Option 2	5.6	45%

		Revenue Miles: Route 39 Modification to Paradise Valley Mall Option 1							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
39	Phoenix	+171.5	+188.3	+179.9	+154.8	37%	41%	45%	39%

		Revenue Miles: Route 39 Modification to Paradise Valley Mall Option 2							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
39	Phoenix	+230.8	+253.3	+242.1	+208.3	50%	55%	61%	52%

		Revenue Miles: Route 39 Extension to Dreamy Draw Park-and-Ride							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
39	Phoenix	+79.2	+86.9	+83.0	+71.5	17%	19%	21%	18%

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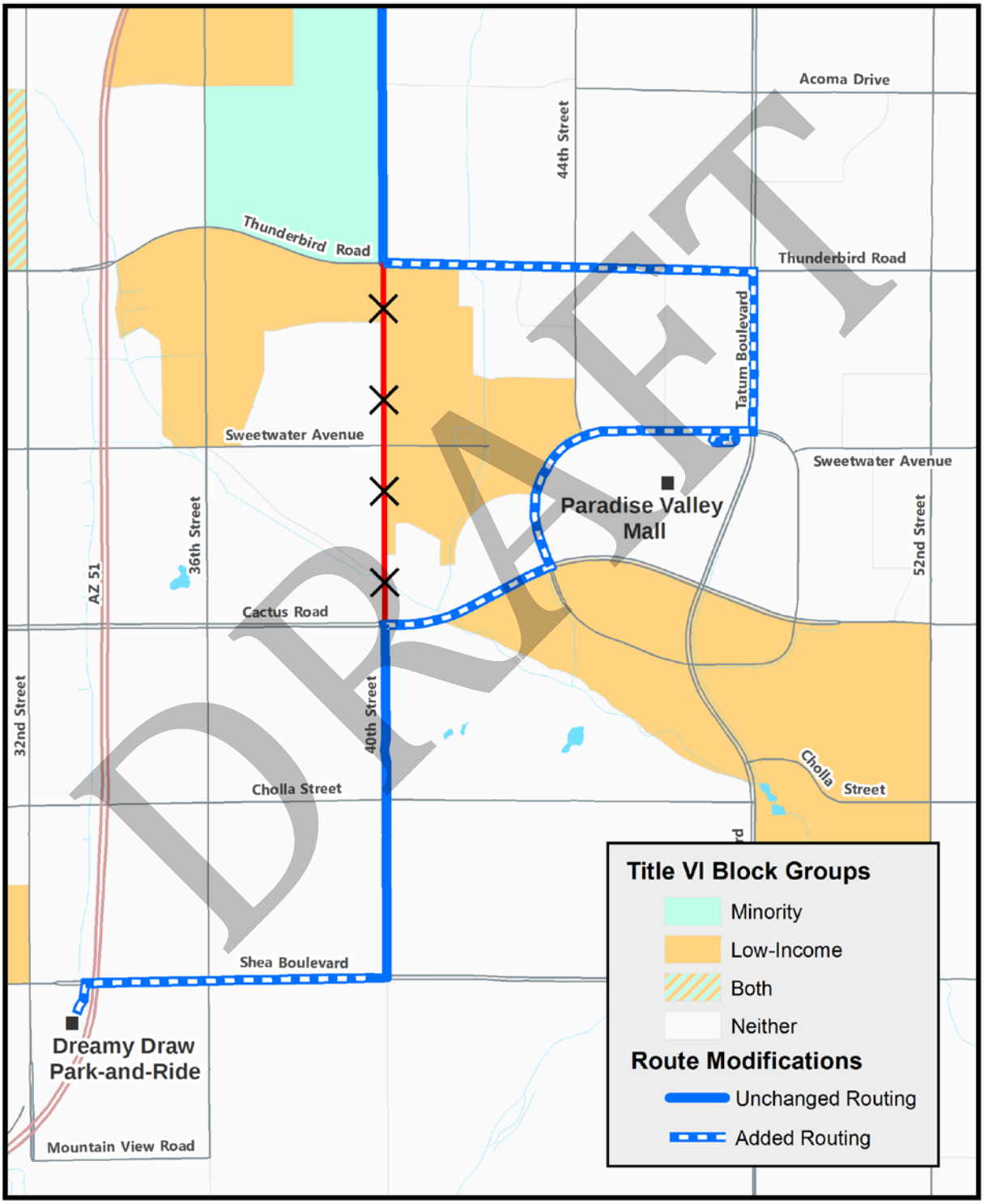
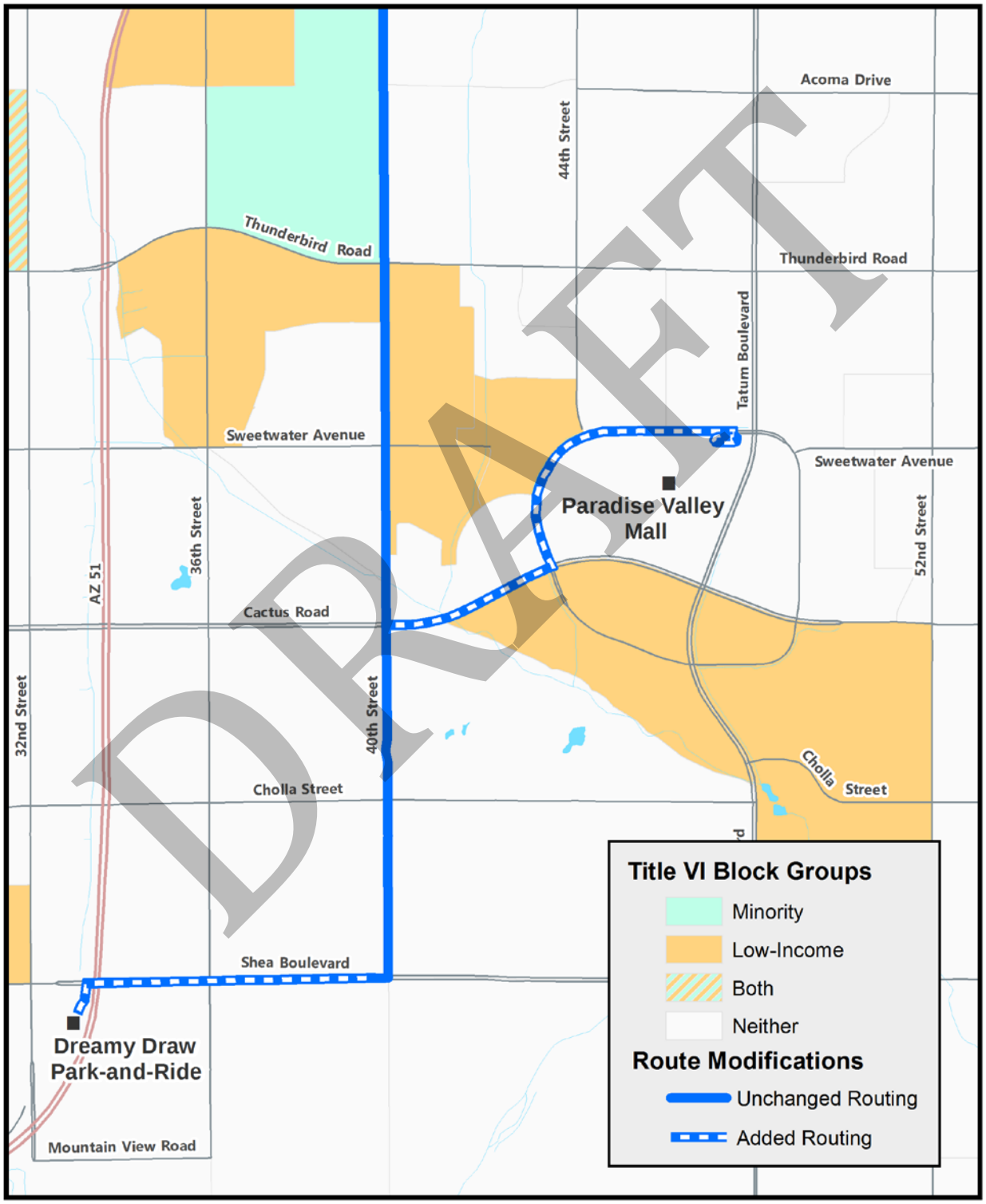
Proposed April 2017 Service Changes: Figure 3

Route 39 Extensions: Option 1



Proposed April 2017 Service Changes: Figure 4

Route 39 Extensions: Option 2



Step 2 – Impacts on Title VI Populations

Modifying Route 39 to serve Paradise Valley Mall by either option will qualify as a major service change. The demographics for each option are provided below.

		Affected Population: Option 1 Added Routing		Affected Population: Option 1 Eliminated Routing	
Route	City	Minority	Low-Income	Minority	Low-Income
39	Phoenix	26.8%	10.8%	31.9%	12.4%

		Affected Population: Option 2 Added Routing	
Route	City	Minority	Low-Income
39	Phoenix	24.7%	11.7%

The proposed modifications to Route 39 to serve Paradise Valley Mall would not disproportionately affect Title VI populations so no further assessment of discrimination is necessary.

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Proposed Change: Route 70 Modification

The City of Phoenix is proposing to modify the southern end of Route 70 to terminate at 24th St/Baseline Park-and-Ride. This change would eliminate a portion of the route serving the neighborhood south of Baseline Rd to South Mountain Rd. This change is proposed due to the negative impacts of the route and turnaround to the neighborhood for which the City has received complaints. The 24th St/Baseline Park-and-Ride would provide a new turnaround location while maintaining service to Baseline Rd. A map of the affected route is provided below in Figure 5.

Step 1 – Magnitude of Service Change

The proposed modifications would result in a change to Route 70's directional route miles and revenue miles.

Directional Route Miles: Route 70 Modification		% Difference
Existing	66.5	-
Eliminate Service to South Mountain Rd	-0.6	-1%

		Revenue Miles: Route 70 Modified End-of-Line							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
70	Phoenix	-29.6	-33.2	-39.1	-33.8	-1%	-2%	-3%	-3%

Step 2 – Impacts on Title VI Populations

Modifying Route 70 to terminate at 24th St/Baseline Park-and-Ride would not result in a major service change based on changes to directional route miles or revenue miles, however, this change does result in elimination of service to an area that is categorized as minority so an assessment of the impacts will be provided. Changes that disproportionately affect Title VI populations are highlighted.

Affected Population	
Minority	Low-Income
71.2%	7.6%

Eliminating service to the area near 24th St & South Mountain Rd would disproportionately affect a minority population, however, existing ridership on the affected segment is low with only nine riders on a typical weekday. Elderly and disabled riders that would be unable to access fixed route service may qualify to use Dial-a-Ride which provides curbside pickups.

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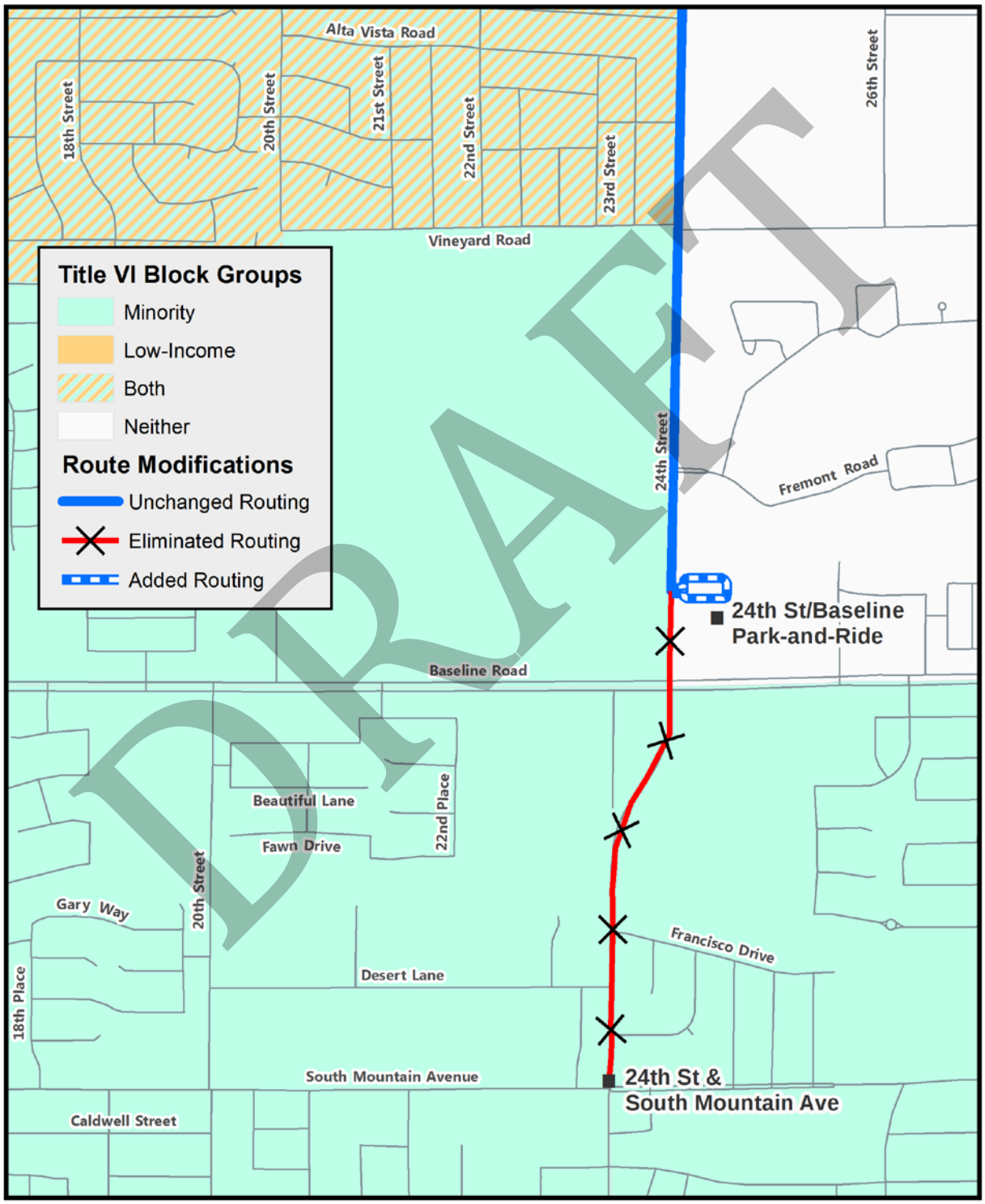
Proposed April 2017 Service Changes: Figure 5

Route 70 End-of-Line Modification



Proposed Change: Scottsdale Route 50 Extension and Span Increase

The City of Scottsdale is proposing two changes to Route 50. The first is an extension so that the first stop on westbound trips will be Drinkwater Blvd & Stetson Dr instead of Camelback Rd & Scottsdale Rd. The second is an increase of service span east of 44th St to Monday through Friday from 4AM to midnight, and on Saturday and Sunday from 5AM to 10PM. This change will also apply to a portion of Camelback Rd that is in Phoenix. Maps of the proposed changes are provided below in Figure 6 and Figure 7.

Step 1 – Magnitude of Service Change

The proposed modifications would result in a change to Route 50's directional route miles and revenue miles. Major changes are shaded:

Directional Route Miles: Route 50 Extension		% Difference
Existing	42.5	-
Eliminate Service to South Mountain Rd	0.4	1%

		Revenue Miles: Route 50 Scottsdale Span Increase							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
50	Phoenix	+45.3	+45.3	+39.9	+39.9	2%	2%	4%	4%
50	Scottsdale	+18.6	+18.6	+16.4	+16.4	23%	23%	26%	26%

		Revenue Miles: Route 50 Scottsdale Extension Westbound to Drinkwater Blvd							
		Change				% Difference			
Route	City	Mon-Thu	Friday	Saturday	Sunday	Mon-Thu	Friday	Saturday	Sunday
50	Scottsdale	+19.2	+19.2	+15.4	+15.4	24%	24%	24%	24%

Step 2 – Impacts on Title VI Populations

Improving service span on Route 50 would result in a major service change on weekends in Scottsdale based on revenue miles increase.

		Affected Population	
Route	City	Minority	Low-Income
50	Scottsdale	29.8%	13.5%

The service span increase would not serve areas that are categorized as Title VI populations, however, Route 50 is Scottsdale's highest ridership route and these changes will be beneficial to the largest number of transit users.

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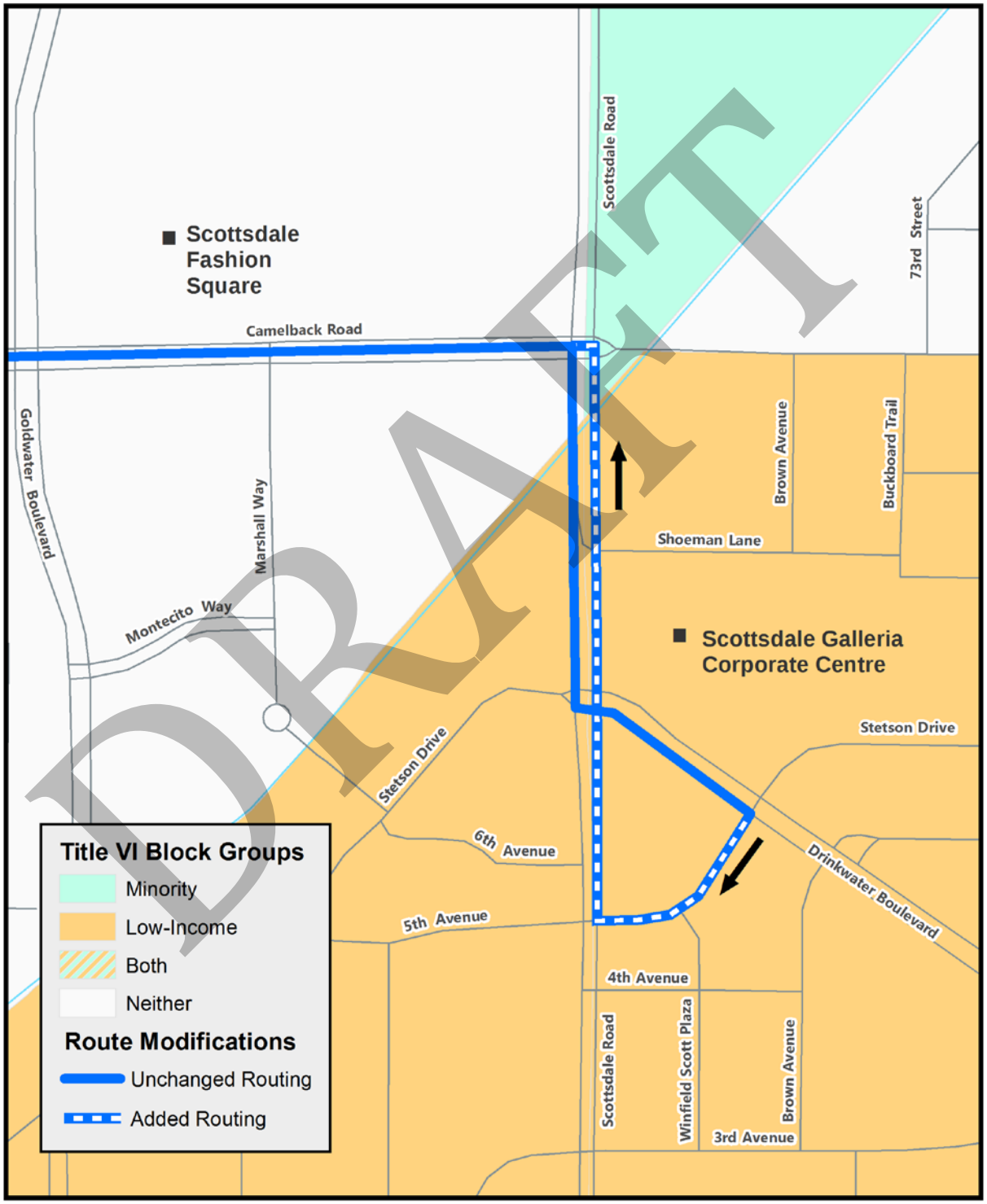
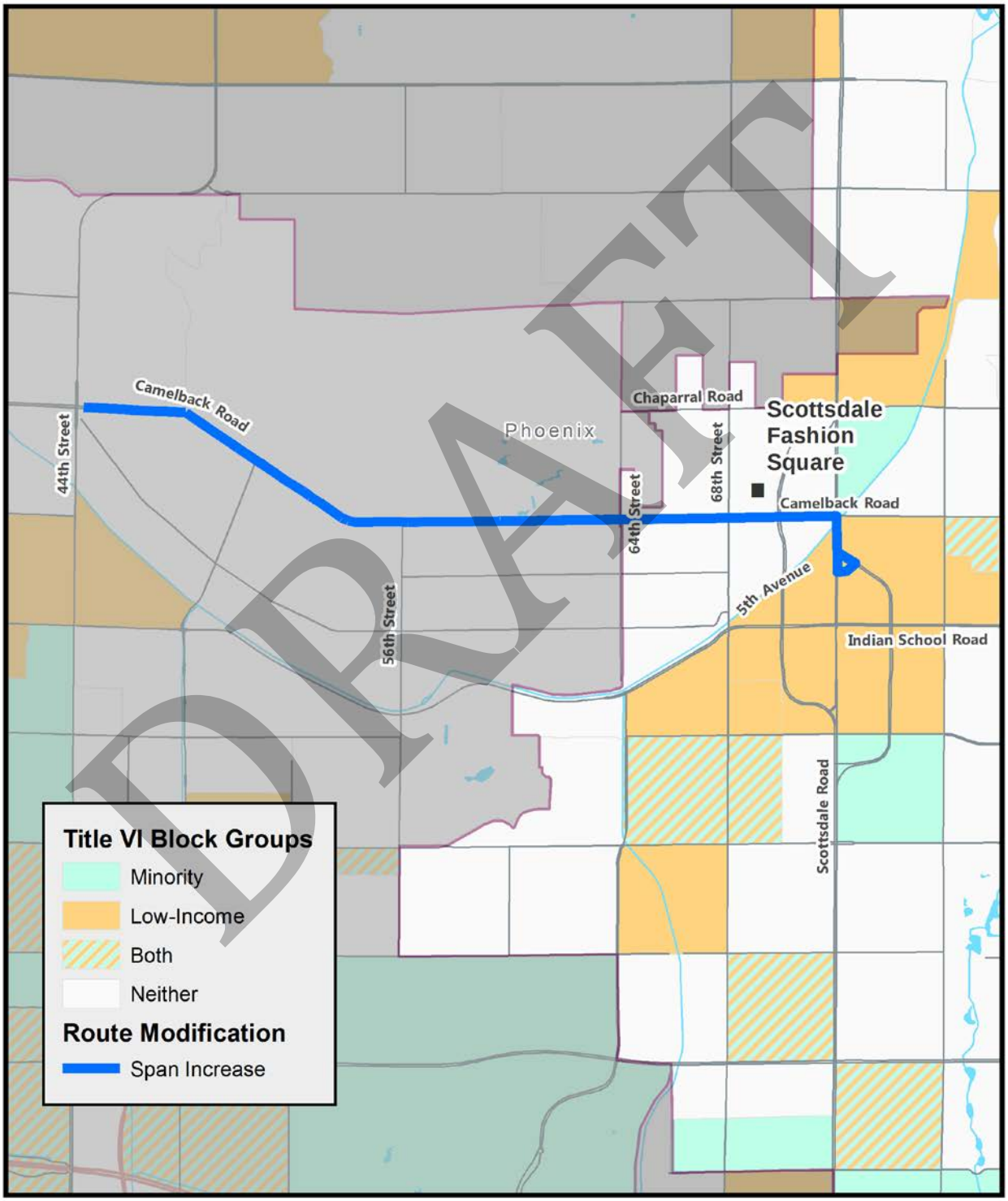
Proposed April 2017 Service Changes: Figure 6

Scottsdale Extension to Drinkwater Blvd & Stetson Dr



Proposed April 2017 Service Changes: Figure 7

Scottsdale Span Increase



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Public Outreach

The Public Transit Department will use the locally adopted public outreach process for the proposed April 2017 bus service changes, as outlined in the City of Phoenix Public Transit Title VI Program. Staff will solicit public comments on service changes through public outreach events and a formal public hearing. Advertisements for the public meetings will be placed in local newspapers; information will also be posted to the Phoenix Public Transit Department and Valley Metro websites.

The following public hearing has been scheduled to present the proposals to the public:

Public Hearing: November 1st, 2016
5:00-6:15 p.m.
Valley Metro Board Room, 10th Floor
101 N. 1st Avenue.
Phoenix, AZ 85003

The public comment period is ongoing until Friday, November 4th, 2016.

Public outreach events are planned from November 1st to 3rd at ASU West, 19th Ave/Dunlap Light Rail Station, 24th Street/Baseline Rd, Paradise Valley Mall Transit Center, and on-board Routes 39 and 122.

Details about proposed service changes are available online and input can be provided with an online comment card. Please visit valleymetro.org/servicechanges.

Comments can also be sent emailed to input@valleymetro.org or pubtrans@phoenix.gov -or mailed to:

Valley Metro Community Relations
Attn: Service Changes
101 N. 1st Ave., Ste. 1300
Phoenix, AZ 85003

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Title VI Analysis

City of Phoenix
Proposed October 2017 Service Changes

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City of Phoenix Public Transit Department

Summary

The City of Phoenix Public Transit Department is focused on improving the efficiency of Phoenix's transit service to best serve our passengers' needs. The proposed October 2017 bus service changes were developed by staff using the best methods and information available, including current ridership trends and customer feedback. They may be modified following review of feedback received during the public process outlined below. Any service cost increases will be funded through Transportation 2050, the dedicated Phoenix transportation tax.

The Public Transit Department regularly reviews routes to determine if modifications can be made to improve service. The proposed October 2017 service changes are as follows:

- Extend Route 19 from Pinnacle Peak Road to Happy Valley Road on 23rd Avenue.
- Increase Route 29 minimum frequency to 15 minutes between Desert Sky Transit Center and 44th Street from 6 a.m. to 7 p.m.
- Increase Route 50 minimum frequency to 15 minutes between 67th Avenue and 44th Street from 6 a.m. to 7 p.m.
- Extend Route 60 from 16th Street and Bethany Home Road to Camelback Road and 20th Street
- New Route 140 on Ray Road between 48th Street and Gilbert Road.

In addition, the following proposed changes are not within the City of Phoenix jurisdiction but are operated by Phoenix contractors:

- In Glendale, remove Route 59 deviation on Utopia Road and Union Hills Drive. Route will remain on 59th Avenue.
- In Glendale, remove Route 60 service on 83rd Avenue.
- In Glendale, remove Route 67 deviation to Arrowhead Mall and add deviation to Abrazo Arrowhead Hospital.
- In Glendale and Peoria, extend Route 83 from Camelback Road to Arrowhead Transit Center

The following assessment is based on service change policies developed by the City of Phoenix Public Transit Department and Valley Metro. Attachment I of the City of Phoenix Public Transit Title VI Program describes the City of Phoenix Major Service Change Equity Evaluation Procedures that apply to this analysis. Details describing the intent of this analysis and evaluation methods can be found in that document. The public input process, described in

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Section 3 of the City of Phoenix Public Transit Title VI Program, begins with this proposal from city staff. The public will have an opportunity to provide feedback through public open houses, citizen outreach efforts, social media, boards and commissions, the Citizens Transportation Commission, the Transportation and Infrastructure Subcommittee of the City Council, and the City Council before final approval. The public comment period will be open for 30 days following the posting of this proposal.

The City of Phoenix Public Transit Title VI Program is available by contacting Kristy Ruiz, City of Phoenix Title VI and ADA Coordinator, kristy.ruiz@phoenix.gov or at 602.534.3026.

Background

Title VI of the Civil Rights Acts of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance. Federal law requires the City of Phoenix to evaluate service changes and proposed improvements at the planning and programming stages to determine whether those changes have a discriminatory impact. This process will be used to evaluate bus services in an objective manner to identify the potential for adverse, disproportionately high, or disparate impacts to minority and/or low income populations. Proposed changes and impacts will be assessed on a route level and by jurisdiction.

Step 1 - Magnitude of Service Change

The first step of the Title VI assessment is to measure and document the magnitude of service change being proposed to determine if a project qualifies as a “major service change” (defined in Major Service Change Equity Evaluation Procedures Manual).

Valley Metro in cooperation with the City of Phoenix Public Transit Department have adopted guidelines to define a major change. Indicators include:

- Adding or Eliminating an entire route
- Expanding or reducing existing revenue miles on a route by more than 25% on any day of the week
- Expanding or reducing number of route directional miles more than 25%
- A change resulting in a 25% or greater variance from the existing route alignment

All projects that are determined to be a “major service change” will move to step 2.

Step 2 - Impacts on Title VI Populations

The second step of the Title VI assessment will evaluate each major service change to determine if it would have a disproportionate impact on low-income and/or minority populations. To do this, the City of Phoenix will compare the demographics of the populations within ½ mile of affected service to the demographics of Maricopa County as a whole.

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The dataset used to calculate the percentages is US Census American Community Survey 2011-2015 5 Year Estimate. The geographic unit of measurement in the dataset is Census Block Groups. Census Block Groups with higher percentage of minority/low-income populations compared to the regional average are categorized as minority/low-income census block groups.

Based on the US Census American Community Survey 2011-2015 5-Year Estimate, 14.4% of households in Maricopa County are considered low-income. 44.7% of Maricopa County population is considered minority population

	Percent Low-Income Households	Percent Minority Population
Regional Average	14.4%	44.7%

If the service area of a major service change route is within low-income and/or minority census block groups, the project will require additional assessment explaining mitigation or mitigating factors to justify the proposed change.

Proposed Change: Route 19

The City of Phoenix is proposing to extend Route 19 north from 23rd Avenue & Pinnacle Peak Road to Happy Valley Road. The route extension will provide a direct bus route from 19th Avenue to Happy Valley Towne Center, create a new connection opportunity with Route 35, and provide new service to residential areas along 23rd Avenue. The extended routing is illustrated in Figure 1: Proposed Route 19 Extension.

Step 1 – Magnitude of Service Change

Route 19 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	3,168.2	3,364.8	2,158.6	1,863.7
Proposed Service	3,278.6	3,484.4	2,259.8	1,951.1
% Difference	3.5%	3.6%	4.7%	4.7%

Route 19 Directional Miles

Current Mile	Proposed Mile	Difference
54.1	56.4	4.2%

Major Decrease

Major Increase

The proposed route extension does not result in a major increase or decrease in scheduled revenue miles or directional miles. Therefore, Route 19 extension is not considered a major service change and will not require further Title VI impact evaluation.

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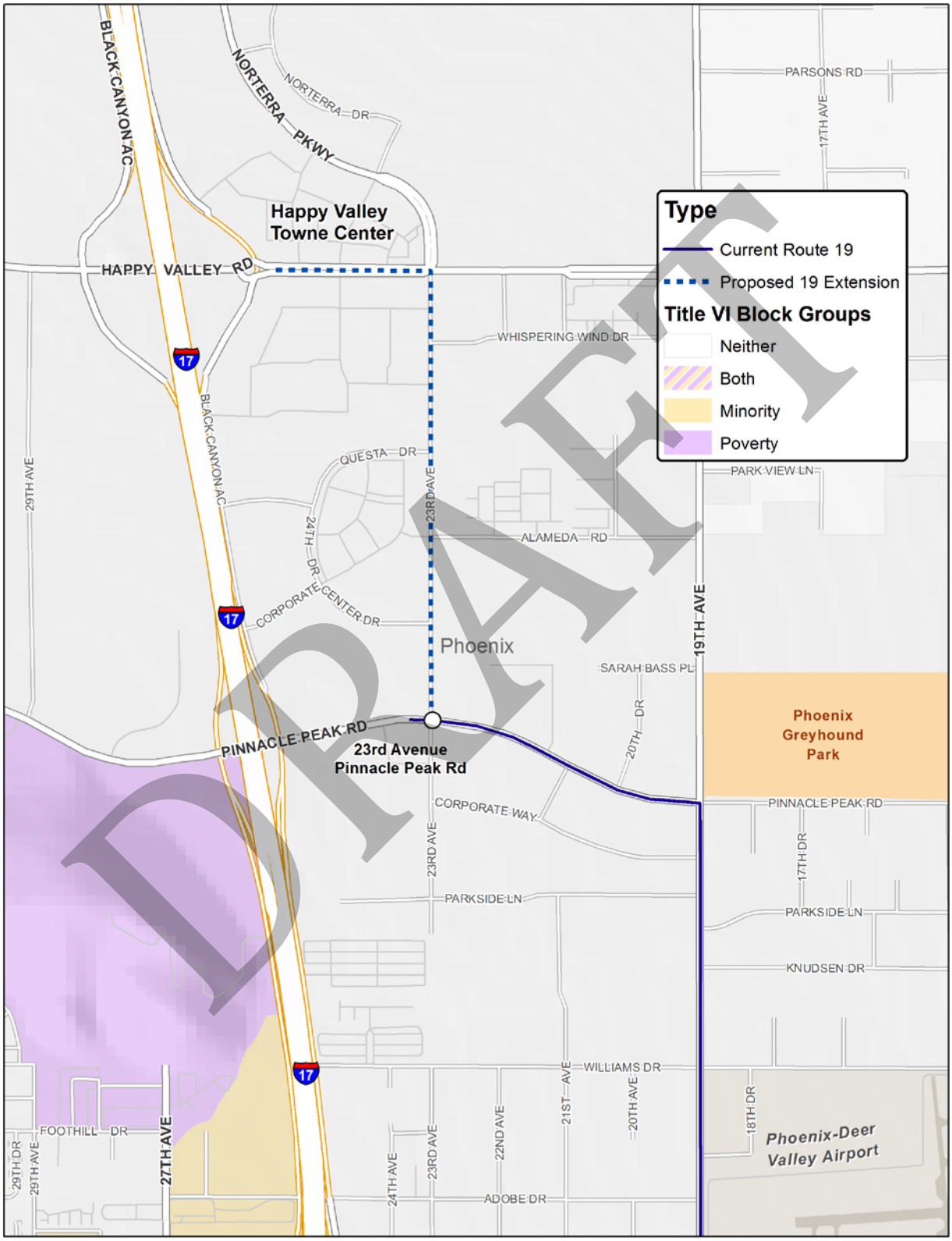
Figure 1: Proposed Route 19 Extension



Proposed Change: Route 29

The City of Phoenix is proposing to increase the off-peak service frequency in the higher ridership segment of Route 29. Route 29 extends from 91st Avenue to Pima Park on Thomas Road and is the highest ridership bus route in the valley. Currently, the high ridership segment between 51st Avenue and 44th Street has 8-minute frequency during peak service times and 20-minute frequency during off-peak times. The proposed service improvement is to increase the midday and early evening frequency from 20 minutes to 15 minutes. The improved frequency would extend from Desert Sky Transit Center to 44th Street.

With the improvement, Route 29 will have a minimum service frequency of every 15 minutes from 6 AM to 7 PM Monday through Friday between Desert Sky Transit Center and 44th Street. 8-minute peak frequency will remain unchanged. The overall impact is reduced wait times between bus connections in the off-peak period. Route 29 segments for improved mid-day service is illustrated in Figure 2: Proposed Route 29 Improvement.

Step 1 – Magnitude of Service Change

Route 29 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	3,066.9	3,207.1	1,772.3	1,561.9
Proposed Service	3,120.9	3,261.1	1,772.3	1,561.9
% Difference	1.8%	1.7%	0.0%	0.0%

Route 29 Directional Miles

Current Mile	Proposed Mile	Difference
45.4	45.4	0.0%

Major Decrease

Major Increase

The proposed improvement does not result in a major increase or decrease in scheduled revenue miles or directional miles. Therefore, Route 29 improvement is not considered a major service change and will not require further Title VI impact evaluation.

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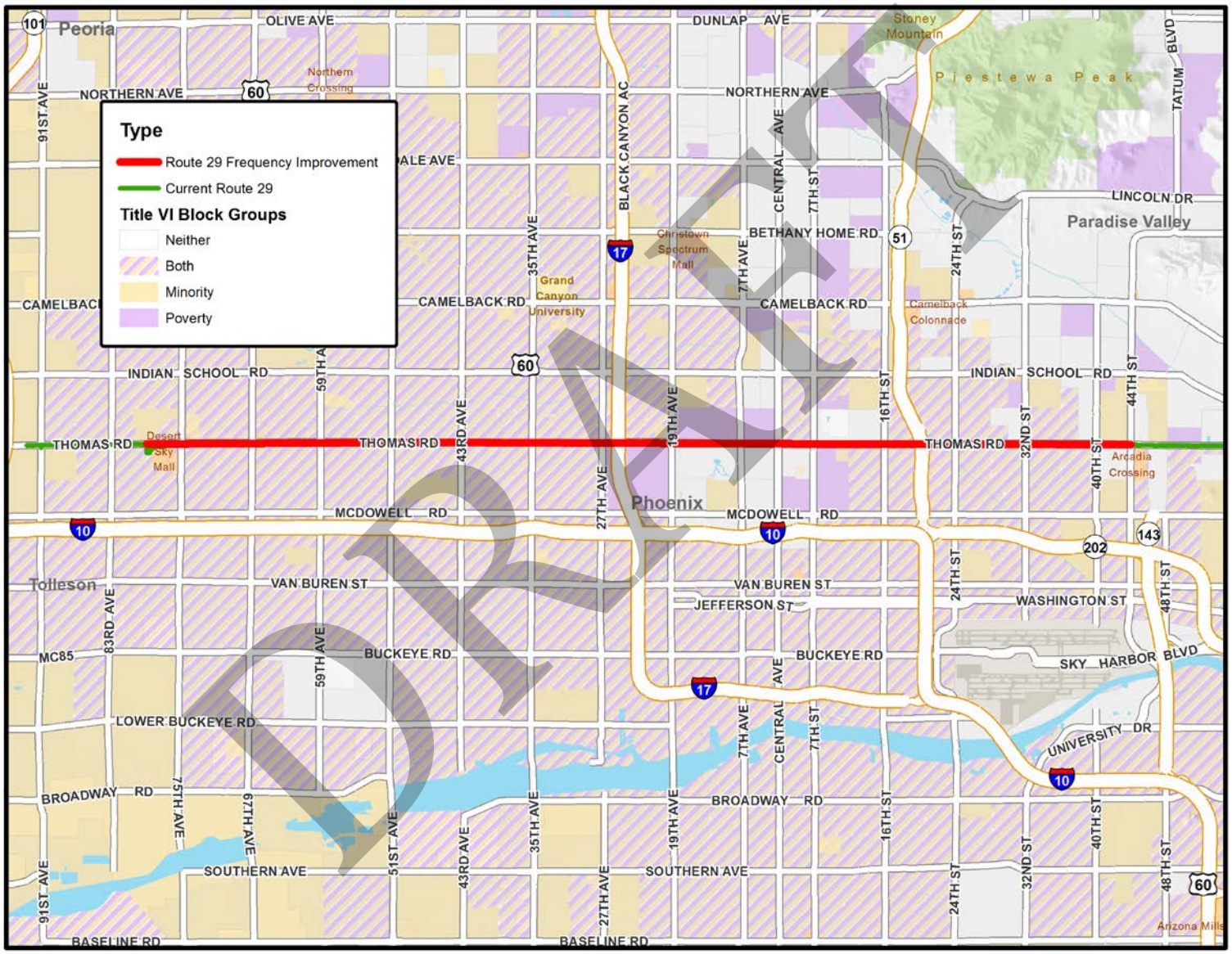
Figure 2: Proposed Route 29 Improvement



Proposed Change: Route 50

The City of Phoenix is proposing to increase the off-peak service frequency in the higher ridership segment of Route 50. Route 50 extends from 107th Avenue to Scottsdale Road on Camelback Road. Currently, the high ridership segment between 67th Avenue and 44th Street has 10-minute frequency during peak service times and 15 to 30-minute frequency during off-peak times. The proposed service improvement is to increase the midday and early evening frequency from 30 minutes to 15 minutes.

With the improvement, Route 50 will have a minimum service frequency of every 15 minutes from 6 AM to 7 PM Monday through Friday. 10-minute peak frequency will remain unchanged. The overall impact is reduced wait times between bus connections in the off-peak period. Route 50 segments for improved mid-day service is illustrated in Figure 3: Proposed Route 50 Improvement.

Step 1 – Magnitude of Service Change

Route 50 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	2,542.7	2,682.6	1,798.8	1,581.5
Proposed Service	2,705.7	2,845.6	1,798.8	1,581.5
% Difference	6.4%	6.1%	0.0%	0.0%

Route 50 Directional Miles

Current Mile	Proposed Mile	Difference
46.0	46.0	0.0%

Major Decrease

Major Increase

The proposed improvement does not result in a major increase or decrease in scheduled revenue miles or directional miles. Therefore, Route 50 improvement is not considered a major service change and will not require further Title VI impact evaluation.

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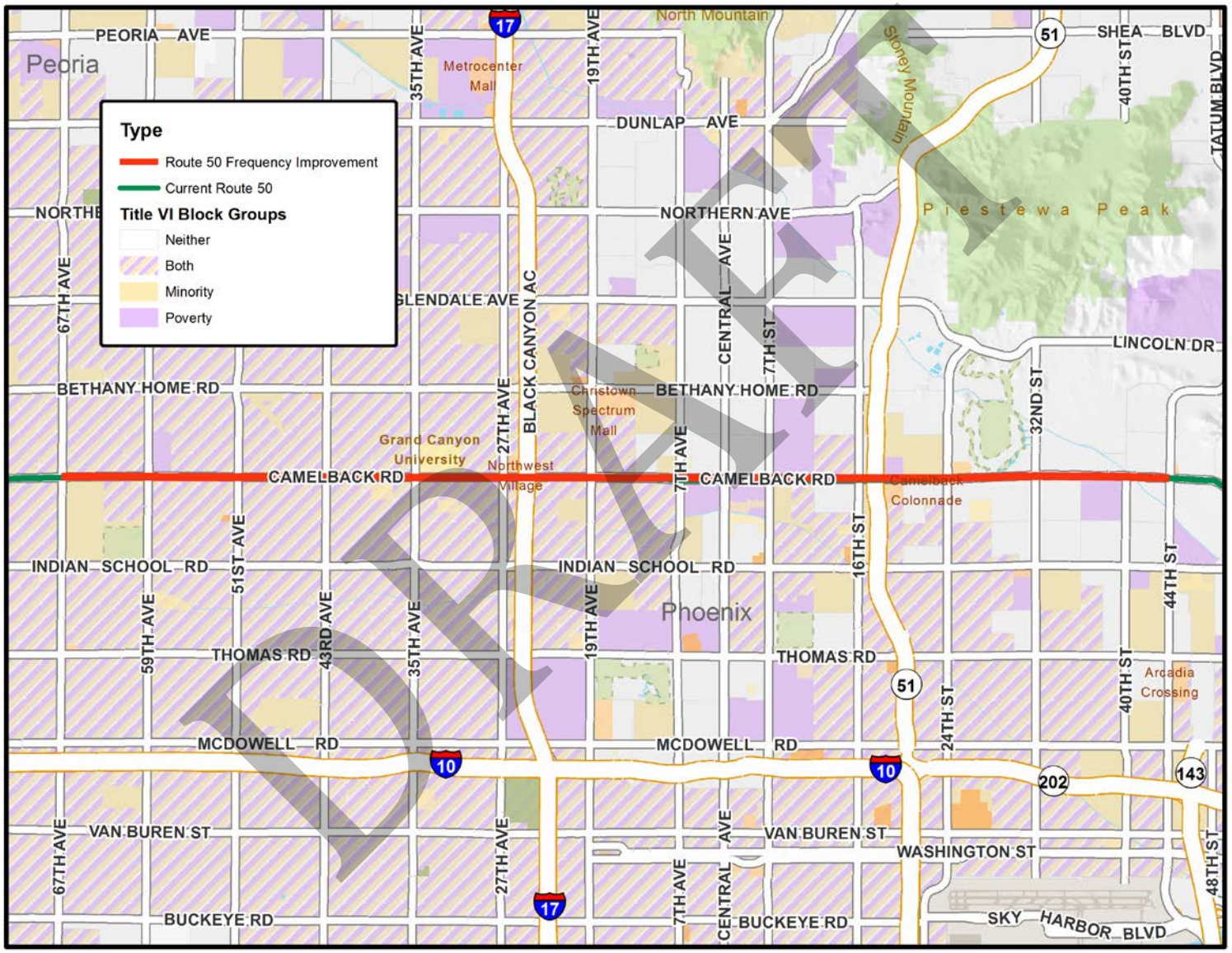
Figure 3: Proposed Route 50 Improvement



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Proposed Change: Route 60

The City of Phoenix is proposing to extend Route 60 from 16th Street & Bethany Home Road to Camelback Road & 20th Street via Missouri Avenue and 20th Street. The route extension will connect Bethany Home Road to residential areas along Missouri Avenue and 20th Street as well as shopping destinations around Camelback Road & 20th Street.

Service to 20th Street & Camelback on Route 60 would be every 30 minutes Monday through Thursday from 4 AM to 12 AM, Friday from 4 AM to 2 AM, Saturday from 5 AM to 2 AM, and Sunday from 5 AM to 11 PM.

In addition, City of Glendale is proposing to eliminate Route 60 service on 83rd Avenue between Bethany Home Road and Glendale Avenue to avoid duplicative service with the proposed Route 83 extension.

Route 60 changes is illustrated in Figure 4: Proposed Route 60 Routing.

Step 1 – Magnitude of Service Change

Route 60 Revenue Miles (Phoenix)

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	558.3	612.7	592.3	510.6
Proposed Service	681.3	747.7	722.8	623.1
% Difference	22.0%	22.0%	22.0%	22.0%

Route 60 Directional Miles (Phoenix)

Current Mile	Proposed Mile	Difference
25.8	28.8	10.4%

Major Decrease

Major Increase

Route 60 Revenue Miles (Glendale)

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	376.0	376.0	179.1	179.1
Proposed Service	311.4	311.4	148.4	148.4
% Difference	-17.2%	-17.2%	-17.1%	-17.1%

Route 60 Directional Miles (Glendale)

Current Mile	Proposed Mile	Difference
12.2	10.2	-19.6%

Major Decrease

Major Increase

The proposed changes do not result in a major increase or decrease in scheduled revenue miles or directional miles in Phoenix or Glendale. Therefore, Route 60 improvement is not considered a major service change. However, since Route 60 changes in Glendale is a reduction, Title VI impacts will be evaluated for Glendale.

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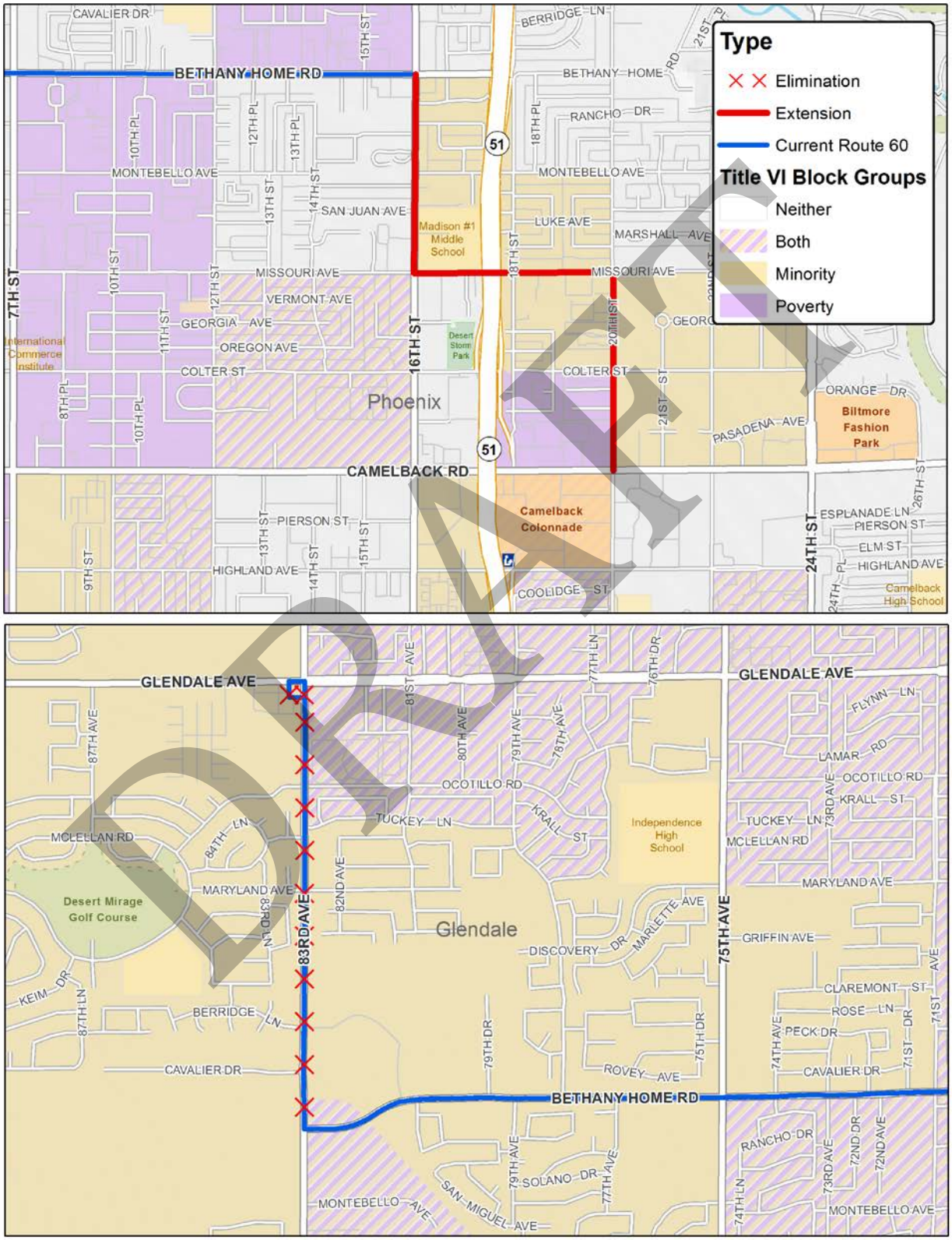
Figure 4: Proposed Route 60 Routing



Step 2 – Impacts on Title VI Populations

1/2 Miles from Route 60 segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
60	10.8%	65.4%

Data Source: US Census American Community Survey 2010-2015 5 Year Estimate

Higher Than Regional Average

Based on the US Census American Community Survey, 10.8% of households within ½ mile of the proposed eliminated segment of Route 60 is considered low-income. 65.4% of residents within ½ mile of the impacted segment are minority. Comparing to the regional average, minority population would be disproportionally impacted from eliminating Route 60 service on 83rd Avenue.

Although the proposed change would negatively impact the riders, a new service on 83rd Avenue is proposed to take over the eliminated segments on the Route 60. As part of the October 2017 service change proposal, Route 83 on 83rd Avenue would be extended from Camelback Road to Arrowhead Transit Center. Existing Route 60 riders that are traveling north on 83rd Avenue from Bethany Home Road would be able to transfer to the Route 83. Total travel time compared to existing service may increase due to transfer time. However, with the propose changes, current Route 60 riders would be able to connect to Route 83 that travels from Van Buren Avenue to Arrowhead Transit Center.

Proposed Change: Route 140

Valley Metro is proposing to operate a new route on Ray Road between 48th Street and Gilbert Road. The route will be named Route 140 and will travel through Phoenix, Tempe, Chandler, and Gilbert. The proposed service frequency on Route 140 is every 30 minutes Monday through Saturday. There will be no Sunday service.

Route 140 routing in Phoenix is illustrated in Figure 5: Proposed Route 140.

Step 1 – Magnitude of Service Change

Route 140 Revenue Miles (In Phoenix)

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	0.0	0.0	0.0	0.0
Proposed Service	30.9	30.9	27.0	0.0
% Difference	100.0%	100.0%	100.0%	100.0%

Route 140 Directional Miles (Phoenix)

Current Mile	Proposed Mile	Difference
0.0	1.0	100.0%

Major Decrease

Major Increase

The proposed new route would qualify as a major increase in service. Title VI impacts on services within the City of Phoenix will be evaluated.

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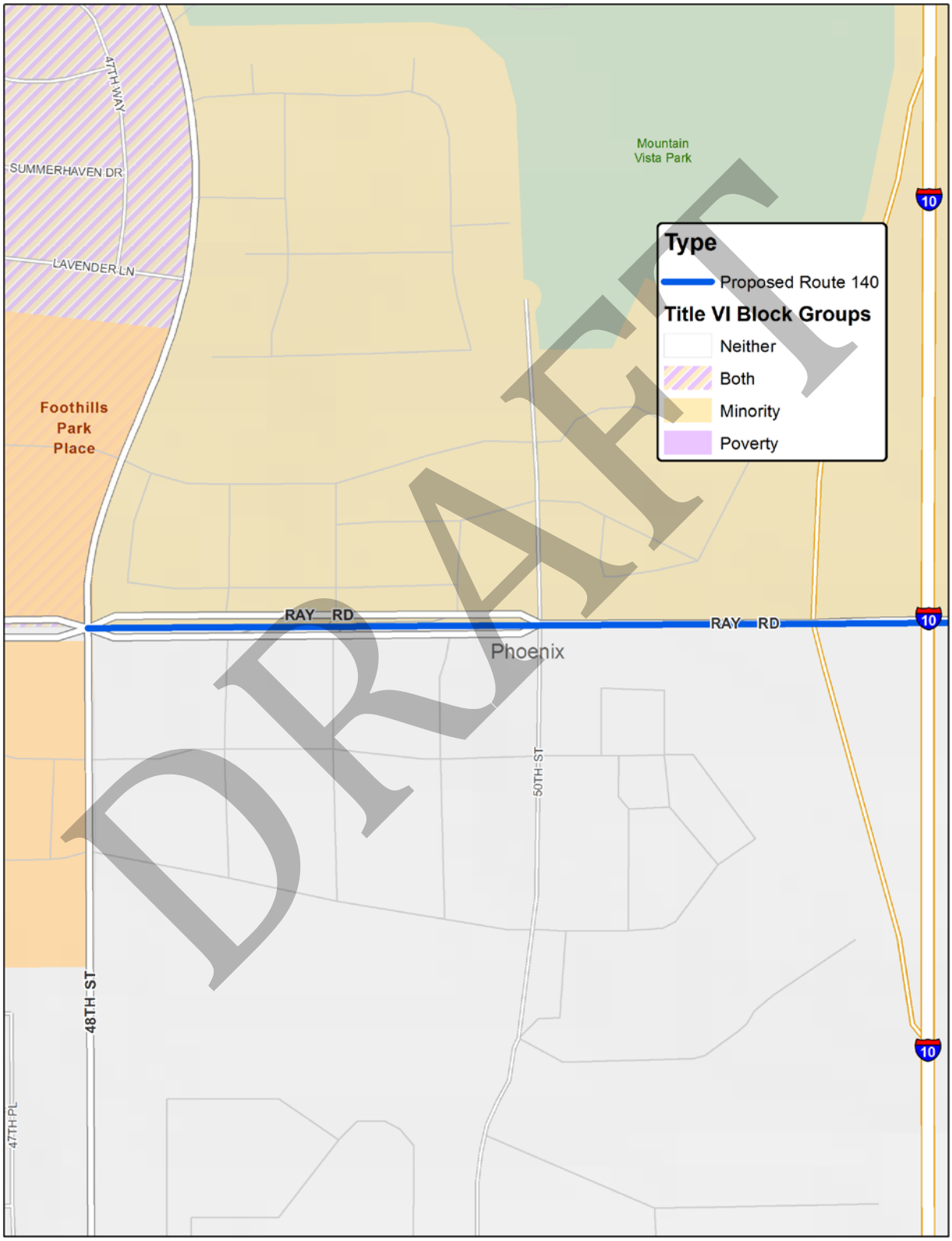
Figure 5: Proposed Route 140



Step 2 – Impacts on Title VI Populations

1/2 Miles from Route 140 segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
140	9.1%	48.2%

Data Source: US Census American Community Survey 2010-2015 5 Year Estimate

Higher Than Regional Average

9.1% of households within ½ mile of the proposed Route 140 in Phoenix is considered low-income. 48.2% of residents within ½ mile of the new route in Phoenix are minority. Comparing to the regional average, minority population would be disproportionally impacted the new Route 140. However, a new service is a positive impact to the area. The new Route 140 would be connecting with existing Route 56 on Ray Road and Route 108 on 48th Street. Route 56 and 140 will both travel from 48th Street to Priest Drive on Ray Road. The new route would provide even more transit service connecting the two shopping areas on both sides on I-10 on Ray Road.

Proposed Change: Route 59

They City of Glendale is proposing to modify Route 59 routing on the north end of the service. Currently Route 59 would deviate from 59th Avenue to service Foothills Recreation & Aquatics Center using Union Hills Drive, 57th Avenue, and Utopia Road. The proposed change is to eliminate the deviation and stay on 59th Avenue between Union Hills Drive and Utopia Road.

Route 59 routing change in Glendale is illustrated in Figure 6: Proposed Route 59 Routing Changes.

Step 1 – Magnitude of Service Change

Route 59 Revenue Miles (Glendale)

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	794.9	797.9	379.5	379.5
Proposed Service	753.3	756.3	359.6	359.6
% Difference	-5.2%	-5.2%	-5.2%	-5.2%

Route 59 Directional Miles (Glendale)

Current Mile	Proposed Mile	Difference
27.0	25.8	-4.7%

Major Decrease

Major Increase

The proposed changes do not result in a major increase or decrease in scheduled revenue miles or directional miles in Glendale. Therefore, Route 59 proposal is not considered a major service change. However, since Route 59 changes in Glendale would no longer service Union Hills Drive, 57th Avenue and Utopia Road, Title VI impacts will be evaluated for Glendale.

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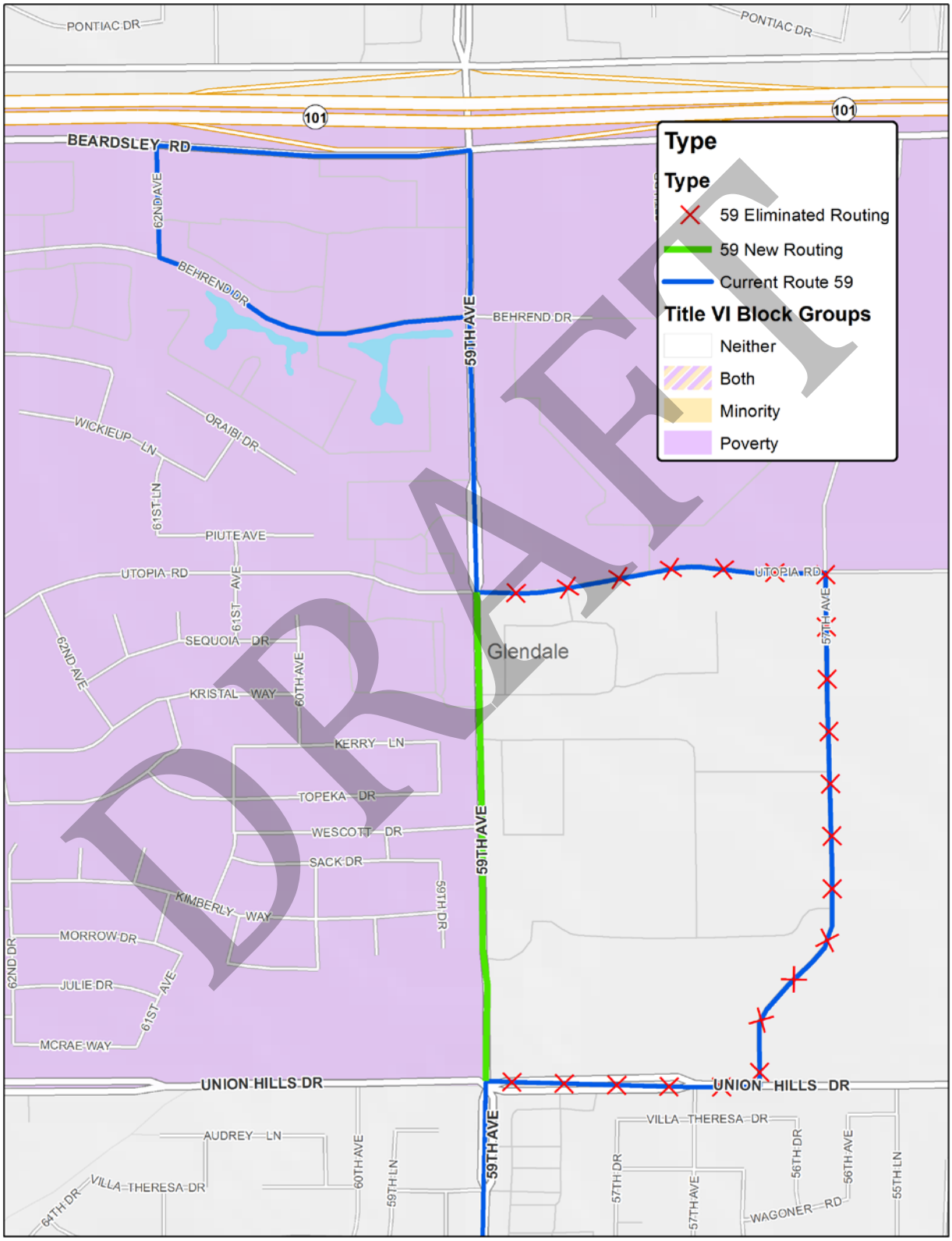
Figure 6: Proposed Route 59 Routing Changes



Step 2 – Impacts on Title VI Populations

1/2 Miles from Route 59 segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
Added Segment	18.8%	31.7%
Eliminated Segment	17.8%	32.2%

Data Source: US Census American Community Survey 2010-2015 5 Year Estimate

Higher Than Regional Average

17.8% of households within ½ mile of the proposed Route 59 eliminated segment in Glendale is considered low-income. 32.2% of residents within ½ mile of the eliminated segment are minority. Comparing to the regional average, neither low income or minority population would be disproportionally impacted by the routing change. Route 59 will still travel between Utopia Road and Union Hills Drive on 59th Avenue. Current users on 57th Avenue will need to talk from 59th Avenue for Route 59 service.

Proposed Change: Route 67

They City of Glendale is proposing to modify Route 67 routing on the north end of the service. Currently Route 67 northbound would turn east on Bell Road from 67th Avenue, turn north on 75th Avenue and service the Arrowhead Transit Center. The proposed change is to eliminate the deviation and stay on 67th Avenue and travel to Union Hills Drive to service Abrazo Arrowhead Hospital.

Route 67 routing change in Glendale is illustrated in Figure 7: Proposed Route 67 Routing Changes.

Step 1 – Magnitude of Service Change

Route 67 Revenue Miles (Glendale)

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	550.9	550.9	252.5	252.5
Proposed Service	461.4	461.4	211.3	211.3
% Difference	-16.2%	-16.2%	-16.3%	-16.3%

Route 67 Directional Miles (Glendale)

Current Mile	Proposed Mile	Difference
22.0	19.5	-12.7%

Major Decrease

Major Increase

The proposed changes do not result in a major increase or decrease in scheduled revenue miles or directional miles in Glendale. Therefore, Route 67 proposal is not considered a major service change. However, since Route 67 changes in Glendale would no longer service Arrowhead Mall, Title VI impacts will be evaluated for Glendale.

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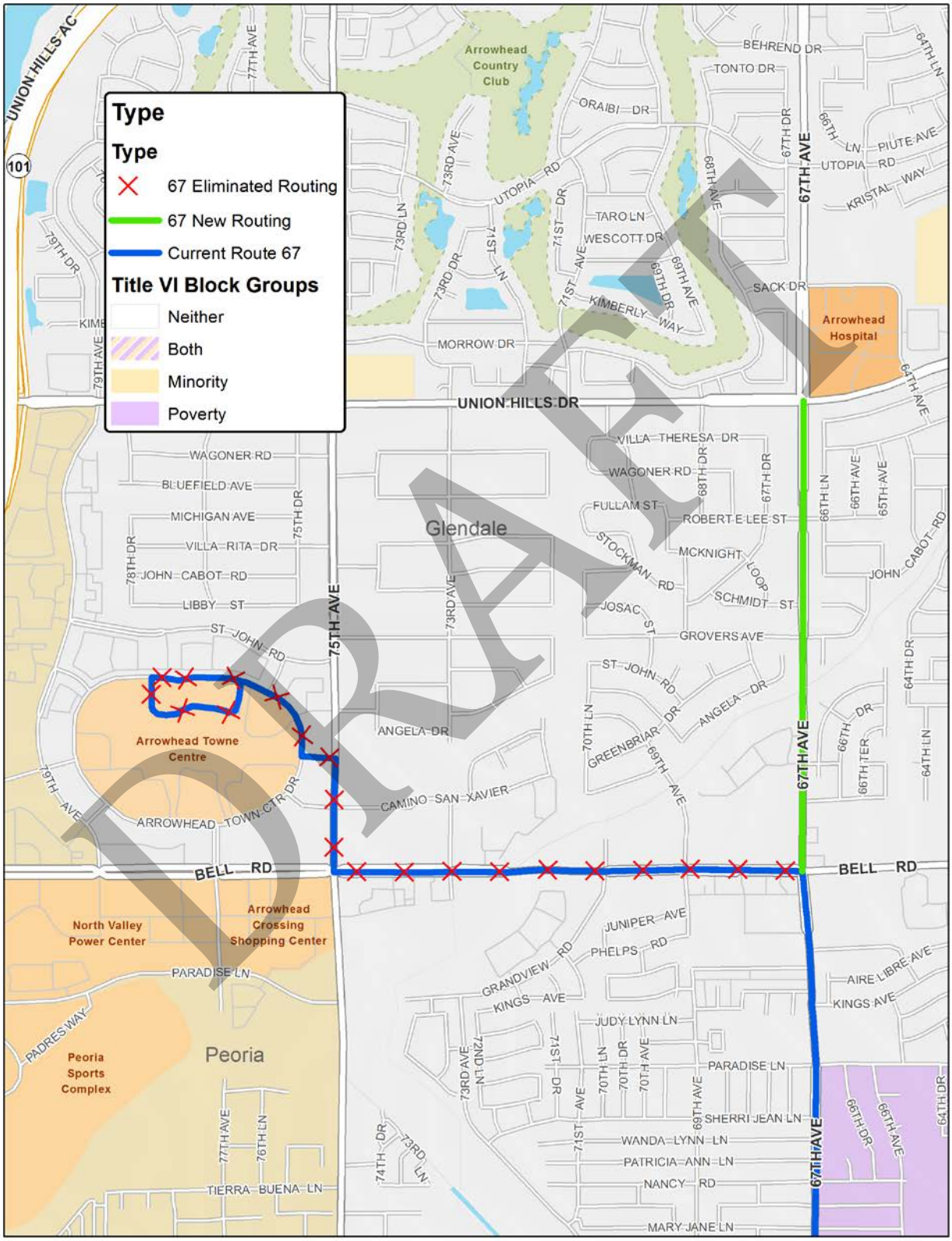
Figure 7: Proposed Route 67 Routing Changes



Step 2 – Impacts on Title VI Populations

1/2 Miles from Route 67 segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
Added Segment	7.3%	27.3%
Eliminated Segment	8.7%	32.8%

Data Source: US Census American Community Survey 2010-2015 5 Year Estimate

Higher Than Regional Average

Based on the US Census American Community Survey, 8.7% of households within ½ mile of the proposed eliminated segment of Route 67 is considered low-income. 32.8% of residents within ½ mile of the impacted segment are minority. On the proposed new segment, 7.3% of households within ½ of the service are low-income and 27.3% of population are minority. Neither eliminated or added segments have percentages of low-income households or minority population higher than the regional average. Thus, the proposed routing change would not disproportionally affect Title VI Populations. Current Route 67 rider who are traveling to Arrowhead Transit Center would need to transfer at 67th Avenue & Bell Road or at the new end of the line at 67th Avenue & Union Hills Drive.

Proposed Change: Extend Route 83

They City of Peoria and Glendale is proposing to extend Route 83 on 83rd Avenue from Camelback Road to Arrowhead Transit Center. Service in Glendale and Peoria will operate every 30 minutes Monday through Friday and hourly on weekends and holidays. The extension would create a connecting opportunity with Route 60, 70, 106, 138, 67, 170, and 186. Route 83 routing change in Glendale and Peoria is illustrated in Figure 8: Proposed Route 83 Extension

Step 1 – Magnitude of Service Change

Route 83 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	451.2	495.2	473.2	407.2
Proposed Service	1,133.4	1,177.4	794.3	728.3
% Difference	151.2%	137.8%	67.9%	78.9%

Route 83 Directional Miles

Current Mile	Proposed Mile	Difference
11.0	30.6	64.1%

Major Decrease

Major Increase

The proposed route extension does result in a major increase in revenue miles and directional miles. Therefore, impacts on Title VI populations will be evaluated for extending the route into Glendale and Peoria.

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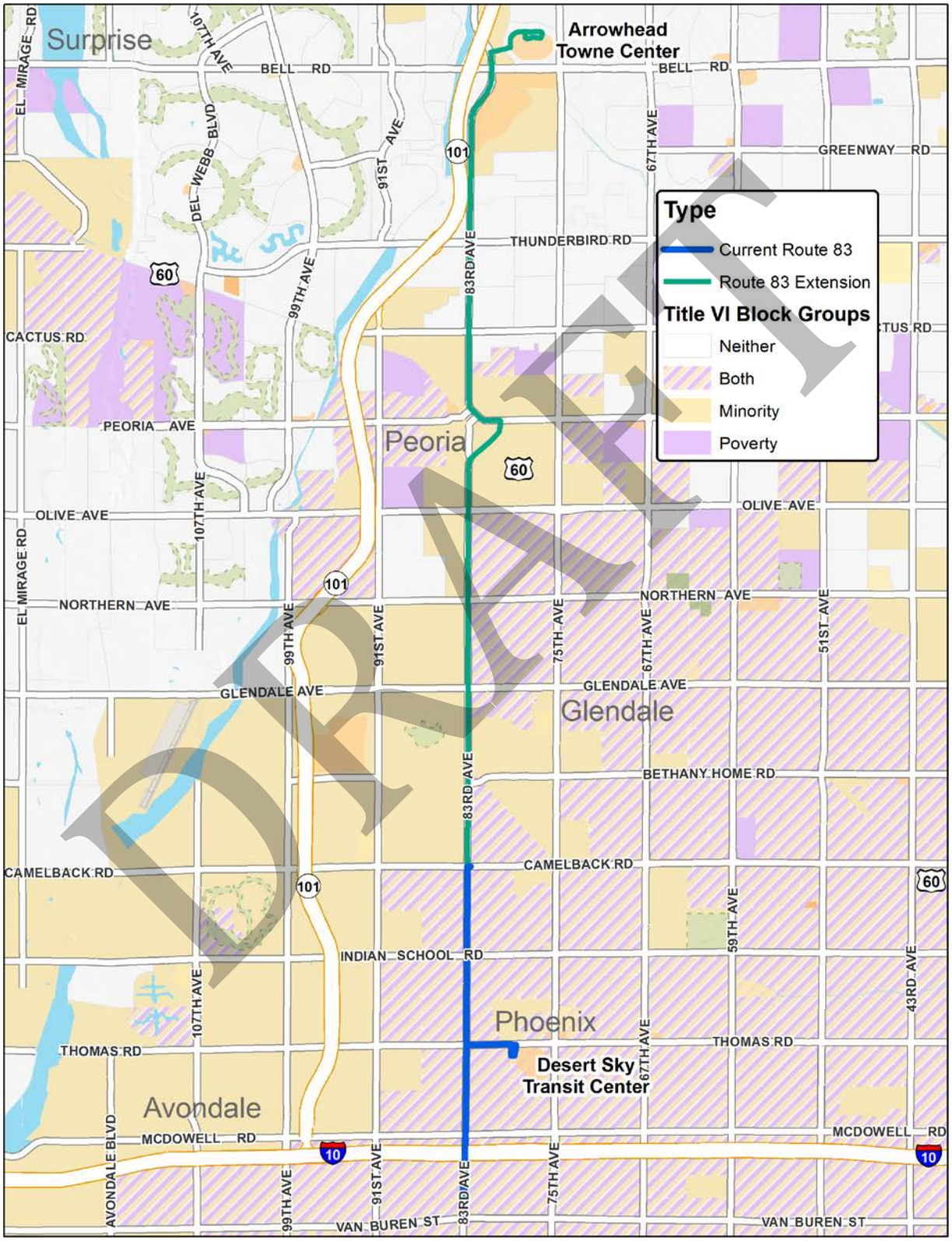
Figure 8: Proposed Route 67 Extension



Step 2 – Impacts on Title VI Populations

1/2 Miles from Route 83 segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
Glendale Segment	16.1%	69.6%
Peoria Segment	9.8%	44.2%

Data Source: US Census American Community Survey 2010-2015 5 Year Estimate

Higher Than Regional Average

Based on the US Census American Community Survey, 16.1% of households within ½ mile of the proposed extended segment of Route 83 in Glendale is considered low-income. 69.6% of residents within ½ mile of the impacted segment are minority. In Peoria, 9.8% of households within ½ of the service are low-income and 44.2% of population are minority. The Route 83 extension in Glendale will serve a higher percentage of Title VI population than the regional average. The extension in Peoria would not service higher percentage of Title VI population. There is no negative impact on extending the Route 83 into Glendale and Peoria. Thus, no further assessment of discrimination is necessary.

Public Outreach

The Public Transit Department will use the locally adopted public outreach process for the proposed October 2017 bus service changes, as outlined in the City of Phoenix Public Transit Title VI Program. Staff will solicit public comments on service changes through public outreach events and a formal public hearing. Advertisements for the public meetings will be placed in local newspapers; information will also be posted to the Phoenix Public Transit Department and Valley Metro websites.

The following public hearing has been scheduled to present the proposals to the public:

Public Hearing: May 15th, 2017 5:00-6:15 p.m.
Valley Metro Board Room, 10th Floor
101 N. 1st Avenue. Phoenix, AZ 85003

The public comment period is ongoing until Friday, May 19th, 2017.
Public outreach events are planned from April 17th, 2017 to May 5th, 2017.

Details about proposed service changes are available online and input can be provided with an online comment card. Please visit valleymetro.org/servicechanges.
Comments can also be sent emailed to input@valleymetro.org or pubtrans@phoenix.gov -or mailed to:

Valley Metro Community Relations
Attn: Service Changes
101 N. 1st Ave., Ste. 1300
Phoenix, AZ 85003

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Title VI Analysis

City of Phoenix
Proposed April 2018 Service Changes

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City of Phoenix Public Transit Department

Summary

The City of Phoenix Public Transit Department is focused on improving the efficiency of Phoenix's transit service to best serve our passengers' needs. The proposed April 2017 bus service changes were developed by staff using the best methods and information available, including current ridership trends and customer feedback. They may be modified following review of feedback received during the public process outlined below. Any service cost increases will be funded through Transportation 2050, the dedicated Phoenix transportation tax.

The Public Transit Department regularly reviews routes to determine if modifications can be made to improve service.

The Public Transit Department is focused on improving the efficiency and reliability of Phoenix's transit system to best serve our passengers' needs. The department reviews passenger input and routes semiannually to determine if improvements can be made to transit services. Improvements can include modifications such as schedule changes, service efficiencies, adding route connections, or leaving routes unchanged, based on the public input received. Bus service changes are coordinated regionally and occur in April and October of each year. The proposed April 2018 bus service changes are as follows:

- Route 1 (Washington) - Eliminate the deviation to the Sky Train Station
- Route 3 (Van Buren) – Increase Off-Peak Frequency to 15 minutes
- Route 19 (19th Avenue) – Increase Off-Peak Frequency to 15 minutes
- Route 30 Extension – Add peak hour trips south along 24th Street from Baseline Road to Francisco Drive.
- SMCC – Eliminate Routes 30 & 77 service to South Mountain Community College (SMCC)
- Central South Mountain East RAPID - Reroute to travel along 24th Street
- Route 32 (32nd Street) Option 1 - Extension to Baseline Road via 40th Street
- Route 32 (32nd Street) Option 2 - Extension to Baseline Road and Priest Drive
- Route 51 (51st Avenue) Option 1 - Extension to Baseline Road
- Route 51 (51st Avenue) Option 2 - Extension to to Vee Quiva Casino

<u>PUBLIC INPUT PROCESS</u>

The Public Transit Department will use the locally adopted public outreach process for the proposed April 2018 bus service changes. During October and November 2017, staff will solicit public comment on service changes through various means, including several public events located near the proposed service change areas in coordination

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with other regional proposed service changes. A formal public hearing will also be held to collect public input and feedback on the proposed service changes.

TITLE VI ASSESSMENT

The following assessment is based on service change policies developed by the City of Phoenix Public Transit Department and Valley Metro. Attachment I of the City of Phoenix Public Transit Title VI Program describes the City of Phoenix Major Service Change Equity Evaluation Procedures that apply to this analysis. Details describing the intent of this analysis and evaluation methods can be found in that document. The public input process, described in Section 3 of the City of Phoenix Public Transit Title VI Program, begins with this proposal from city staff. The public will have an opportunity to provide feedback through public open houses, citizen outreach efforts, social media, boards and commissions, the Citizens Transportation Commission, the Transportation and Infrastructure Subcommittee of the City Council, and the City Council before final approval. The public comment period will be open for 30 days following the posting of this proposal.

The City of Phoenix Public Transit Title VI Program is available by contacting Kevin Teng our Service Planning Manager at kevin.teng@phoennix.gov or at (602) 495-7194.

Background

Title VI of the Civil Rights Acts of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance. Federal law requires the City of Phoenix to evaluate service changes and proposed improvements at the planning and programming stages to determine whether those changes have a discriminatory impact. This process will be used to evaluate bus services in an objective manner to identify the potential for adverse, disproportionately high, or disparate impacts to minority and/or low income populations. Proposed changes and impacts will be assessed on a route level and by jurisdiction.

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- Adding or Eliminating an entire route

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- Expanding or reducing existing revenue miles on a route by more than 25% on any day of the week
- Expanding or reducing number of route directional miles more than 25%
- A change resulting in a 25% or greater variance from the existing route alignment

All projects that are determined to be a “major service change” will move to step 2.

Step 2 - Impacts on Title VI Populations

The second step of the Title VI assessment will evaluate each major service change to determine if it would have a disproportionate impact on low-income and/or minority populations. To do this, the City of Phoenix will compare the demographics of the populations within ½ mile of affected service to the demographics of Maricopa County as a whole.

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	Percent Low-Income Households	Percent Minority Population
Regional Average	14.4%	44.7%

If the service area of a major service change route is within low-income and/or minority census block groups, the project will require additional assessment explaining mitigation or mitigating factors to justify the proposed change.

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Route 1 (Washington) - Eliminate the deviation to the Sky Train Station

The proposed project modifies routing at Sky Harbor International Airport's Sky Train Station. On both eastbound and westbound trips, the route currently uses a ~1-mile deviation per trip using 41st Place, a roundabout on Madison Street, and 44th Street to service a Sky Train Station bus stop. The proposed routing change is to eliminate the deviation to the Sky Train Station by keeping the Route 1 on Washington Street between 41st Place and 44th Street. Passengers transferring between Route 1 and Route 44 will still be able to make the transfer at the intersection of Washington and 44th streets, and passengers needing to travel into the airport will still be able to utilize the Sky Train station. The impacts of the route modification are faster travel times and cost savings for the route overall, while still providing the necessary passenger connections.

The routing change is illustrated in Appendix A - Figure 1: Proposed Route 1 Changes.

Step 1 – Magnitude of Service Change

Route 1 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	647	710	686	592
Proposed Service	587	644	623	537
% Difference	-9.2%	-9.2%	-9.3%	-9.3%

Route 1 Directional Miles

Current Mile	Proposed Mile	Difference
15.0	14.5	(3.1%)

	Major Decrease
	Major Increase

The proposed route changes do not result in a major increase or decrease in scheduled revenue miles or directional miles. Therefore, Route 1 changes are not considered a major service change and will not require further Title VI impact evaluation.

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Route 3 (Van Buren) – Increase Off-Peak Frequency to 15 minutes

The proposed project increases the off-peak service frequency during weekdays in the higher ridership segment of the route. Route 3, the eighth busiest route in the region, operates from near Litchfield Road on the west end in Avondale, to the Phoenix Zoo on the east end. Currently, the high ridership segment (between 35th Avenue and 32nd Street) operates at 10-minute frequency during peak service periods and 15-minute frequency during off-peak times before 6 PM. After 6 PM, Route 3 runs every 20 minutes until 7 PM and then runs at a 30-minute frequency after 7 PM. The proposed improvement is to increase the early evening frequency to 15 minutes until 7 PM. With the improvement, Route 3 will have a minimum service frequency of every 15 minutes from 6 AM – 7 PM Monday through Friday between 35th Avenue and 32nd Street. Current 10-minute peak frequencies will remain unchanged. The overall impact will be reduced passenger wait times between bus connections in the off-peak period for the route.

The frequency increase is illustrated in Appendix A - Figure 2: Proposed Route 3 Changes.

Step 1 – Magnitude of Service Change

Route 3 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	1,963	2,089	1,432	1,236
Proposed Service	1,991	2,117	1,432	1,236
% Difference	1.4%	1.3%	0.0%	0.0%

Route 3 Directional Miles

Current Mile	Proposed Mile	Difference
34.0	34.0	(0.0%)

	Major Decrease
	Major Increase

The proposed route frequency increase does not result in a major increase or decrease in scheduled revenue miles or directional miles. Therefore, Route 3 frequency increase is not considered a major service change and will not require further Title VI impact evaluation.

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Route 19 (19th Avenue) – Increase Off-Peak Frequency to 15 minutes

The proposed project increases the off-peak service frequency during weekdays for the higher ridership segment of the route. Route 19, the third highest ridership route in the region, operates from the 27th Avenue & Baseline P&R on the south end, to Happy Valley Towne Center at 23rd Avenue & Happy Valley Road on the north end. Currently, the high ridership segment (between Van Buren Street and Union Hills Drive) operates at 12-minute frequency during peak service periods and 24-minute frequency during off-peak times until 9 PM. The proposed service improvement is to increase the early evening frequency from 24-minutes to 15 minutes until 7 PM. With the improvement, Route 19 will have a minimum service frequency of every 15 minutes from 6 AM – 7 PM Monday through Friday between Van Buren Street and Union Hills Drive. Current 12-minute peak frequencies will remain unchanged. The overall impact will be reduced passenger wait times between bus connections in the off-peak period of the route.

The extended routing is illustrated in Appendix A - Figure 3: Proposed Route 19 Changes.

Step 1 – Magnitude of Service Change

Route 19 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	3,279	3,484	2,260	1,951
Proposed Service	3,335	3,540	2,260	1,951
% Difference	1.7%	1.6%	0.0%	0.0%

Route 19 Directional Miles

Current Mile	Proposed Mile	Difference
51.2	51.2	(0.0%)

	Major Decrease
	Major Increase

The proposed route frequency increase does not result in a major increase or decrease in scheduled revenue miles or directional miles. Therefore, Route 19 frequency increase is not considered a major service change and will not require further Title VI impact evaluation.

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Route 30 – A peak hour trips south along 24th Street from Baseline Road to Francisco Drive

The proposed project extends Route 30 to service 24th St. and Francisco Drive for peak hour trips. In April 2017, The City of Phoenix modified the southern end of Route 70 to terminate at 24th St/Baseline Park-and-Ride. Previously the route continued to south to serve the small neighborhood at South Mountain Avenue. Since that change was implemented, a small number of residents have complained that their children could no longer use transit to get to and from school. Staff met with neighborhood residents and found a compromise where a limited number of peak-hour trips would return to the neighborhood using a modified turn-around pattern.

The extended routing is illustrated in Appendix A - Figure 4: Proposed Route 30 Extension.

Step 1 – Magnitude of Service Change

Route 30 Extension Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	3,279	3,484	2,260	1,951
Proposed Service	3,280	3,486	2,260	1,951
% Difference	0.1%	0.1%	0.0%	0.0%

Route 30 Extension Directional Miles

Current Mile	Proposed Mile	Difference
12.7	13.3	5%

	Major Decrease
	Major Increase

The proposed route modification does not result in a major increase or decrease in scheduled revenue miles or directional miles. Therefore, Route 30 extension is not considered a major service change and will not require further Title VI impact evaluation.

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Route 32 (32nd Street) - Extension to Baseline Road via 40th Street

Phoenix is coordinating with City of Tempe staff on two potential options to extend the route to provide service in the area of south 40th Street:

- Option 1: Extend the south end of the route from its current terminus (Sky Harbor International Airport's Sky Train Station) to 40th Street and Baseline Road via 44th Street and University Drive.
- Option 2: Further extend the route by traveling on Baseline Road and terminating near Arizona Mills Mall at Baseline Road and Priest Drive. The route extension would provide connections to Routes 40, 45, 52, 61, and 77, and potentially Routes 48 and 56 if the second option is also elected. Bus service in the area of south 40th Street was identified as a service need in the Transportation 2050 plan. The option to potentially extend the route to Arizona Mills Mall will be dependent on Tempe's commitment to fund the added bus service within Tempe.

The extended routing is illustrated in Appendix A - Figure 5: Proposed Route 32 Changes

Step 1 – Magnitude of Service Change

Route 32 Opt1 Revenue Miles PHOENIX

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	3,279	3,484	2,260	1,951
Proposed Service	4,223	4,521	3,262	2,815
% Difference	28.8%	29.8%	44.4%	44.3%

Route 32 Opt1 Directional Miles

Current Mile	Proposed Mile	Difference
16.9	28.4	68%

Major Decrease

Major Increase

Route 32 Opt2 Revenue Miles PHOENIX

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	3,279	3,484	2,260	1,951
Proposed Service	4,530	4,858	3,587	3,096
% Difference	38.2%	39.4%	58.7%	58.7%

Route 32 Opt2 Directional Miles

Current Mile	Proposed Mile	Difference
16.9	32.1	90%

Major Decrease

Major Increase

Route 32 Opt2 Revenue Miles TEMPE

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	0	0	0	0
Proposed Service	82	90	87	75
% Difference	100%	100%	100%	100%

Route 32 Opt2 Directional Miles

Current Mile	Proposed Mile	Difference
0.0	2.0	100%

Major Decrease

Major Increase

The proposed route extension does result in a major increase in scheduled revenue miles and directional miles in both Phoenix and Tempe, and is therefore considered a major service change and will require further Title VI impact evaluation.

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Route 51 (51st Avenue) - Extension to Baseline Road or to Vee Quiva Casino

The proposed project includes two potential options to extend Route 51 along 51st Avenue:

- Option 1: Extend the south end of the route from its current terminus at 51st Avenue and Lower Buckeye Road to 51st Avenue and Baseline Road.

- Option 2: Further extend the route by combining Route 51 and the current Route 251 and eliminate the duplicative service on Baseline Road between 51st Avenue and the 27th Avenue/Baseline park-and-ride. This second option would create a single route on 51st Avenue between ASU West, Vee Quiva Casino, and the Komake Health Center, and would create multiple new passenger connections along Routes 51 and 77.

  Bus service on 51st Avenue between Lower Buckeye Road and Baseline was identified as a service need in the Transportation 2050 plan. The option to extend the route onto the Gila River Indian Community would be contingent upon the tribe's commitment to reallocate funding currently used for Route 251, and Valley Metro's coordination with their service provider for Route 251. An intergovernmental agreement would also be required between Phoenix and the Gila River Indian Community to provide service within their boundaries. This second option may occur in April 2018, at some point in the future, or not at all.

The extended routing is illustrated in Appendix A – Figure 6A: Proposed Route 51 Option 1 and Figure 6B: Proposed Route 51 Option 2

Step 1 – Magnitude of Service Change

Route 51 Extension Option 1 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	580	636	617	532
Proposed Service	833	914	893	764
% Difference	43.6%	43.6%	44.6%	43.5%

Route 51 Extension Option 1 Directional Miles

	Current Mile	Proposed Mile	Difference
	15.4	21.4	39%
		Major Decrease	
		Major Increase	

Route 51 Extension Option 2 Revenue Miles - PHOENIX

	Mon-Thu	Friday	Saturday	Sunday
Existing Rts 51 & 251	817	874	855	770
Proposed Rt 51	952	1,032	1,004	883
% Difference	16.4%	18.1%	17.5%	14.7%

Route 51 Extension Option 2 Directional Miles - PHOENIX

	Current Mile	Proposed Mile	Difference
Rts 51 & 251	28.6	28.6	0%
		Major Decrease	
		Major Increase	

Route 51 Extension Option 2 Revenue Miles - GRIC

	Mon-Thu	Friday	Saturday	Sunday
Existing Rts 251	169	169	169	169
Proposed Rt 51	169	169	169	169
% Difference	0.0%	0.0%	0.0%	0.0%

Route 51 Extension Option 2 Directional Miles - GRIC

	Current Mile	Proposed Mile	Difference
Rts 51 & 251	9.5	9.5	0%
		Major Decrease	
		Major Increase	

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- Option 1 ***does*** result in a major increase in both scheduled revenue miles and directional miles in Phoenix. Route 51 Extension Option 1 is therefore considered a major service change. However, as the change is positive, this option will not require further Title VI impact evaluation.

- Option 2, in Gila River Indian Community, ***does not*** result in a major net increase or decrease in scheduled revenue miles or directional miles.

- Option 2, in Phoenix, ***does*** result in a significant revenue mile increase although total directional miles do not change. The increase is due to the three-mile extension along 51st Avenue from Baseline Road to Lower Buckeye Road. However, there is a net loss of service along a three-mile stretch of Baseline Road in Phoenix. The elimination of Route 251 from 27th Avenue to 51st Avenue will result in fewer trips along that segment. Because of the potential negative impacts along this segment, this project will require further Title VI impact evaluation.

<u>Step 2 - Impacts on Title VI Population</u>

1/2 Miles from project segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
Eliminated Segment	27.2%	80.5%

An examination of the area demographics show that the impacted Baseline Road segment is in fact a Title VI area. The eliminated service on this segment was hourly, but there is another route, Route 77 that serves the same segment with 30-minute frequency. We believe the existing Route 77 serves mitigates the negative impacts by providing riders with a good alternative.

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Route 30 and 77 – Eliminate service to South Mountain Community College

The proposed project eliminates bus service on the campus of South Mountain Community College (SMCC). Reroute to no longer enter the South Mountain Community College campus or serve the campus with limited trips. Changes are dependent on the decision from South Mountain Community College based on consultation and public feedback.

The extended routing is illustrated in Appendix A – Figure 7: Proposed Route 30 and Route 77 SMCC Changes

Step 1 – Magnitude of Service Change

SMCC Route 30 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	517	517	499	221
Proposed Service	458	458	441	195
% Difference	-11.5%	-11.5%	-11.5%	-11.5%

SMCC Route 30 Directional Miles

Current Mile	Proposed Mile	Difference
12.7	11.5	(9.5%)

Major Decrease

Major Increase

SMCC Route 77 Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	1,197	1,197	1,213	1,045
Proposed Service	1,158	1,158	1,213	1,045
% Difference	-3.3%	-3.3%	0.0%	0.0%

SMCC Route 77 Directional Miles

Current Mile	Proposed Mile	Difference
30.0	29.0	(3.3%)

Major Decrease

Major Increase

This project does not result in a major increase in either scheduled revenue miles or directional miles. However, more than 75 percent of the student population at SMCC identify as a minority and SMCC has been federally-designated as a Minority Serving and Hispanic Serving Institution. Therefore, the impacts of loss of service to the school must be considered.

Based on fare collection data from February through April 2017, there was an average 60 bus riders per day boarding at SMCC.

Step 2 - Impacts on Title VI Population

1/2 Miles from Route 30 and 77 segments with major impacts		
	Percent Low-Income Households	Percent Minority Population
Eliminated Segment	28.4%	75.5%

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Central South Mountain East RAPID - Reroute to travel along 24th Street

The proposed project to modify the Central South Mountain East RAPID routing between the 24th Street/Baseline park-and-ride and Downtown Phoenix. The route current travels between the park and ride and downtown via Baseline Road and Central Avenue. The routing on Central Avenue duplicates the Central South Mountain West RAPID that services the 27th Avenue/Baseline park-and-ride.

The proposal is to reroute the Central South Mountain East RAPID to travel along 24th Street to Van Buren Street and follow the current downtown routing of the SR51 RAPID. Current riders from the 24th Street/Baseline park-and-ride would be able to debark at the same RAPID stops in Downtown Phoenix as other current routes. The new Central South Mountain East RAPID service would be added along 24th Street and continue traveling into Central Station, thus offering a multitude of new connections which currently do not exist. RAPID riders along Central Avenue would still be able to use the Central South Mountain West RAPID to commute into downtown.

The extended routing is illustrated in Appendix A - Figure 8: Proposed Central South Mountain East RAPID Changes.

Step 1 – Magnitude of Service Change

CSME Revenue Miles

	Mon-Thu	Friday	Saturday	Sunday
Existing Service	88	88	0	0
Proposed Service	94	94	0	0
% Difference	6.2%	6.2%	0.0%	0.0%

CSME Directional Miles

Current Mile	Proposed Mile	Difference
17.7	17.9	1%

	Major Decrease
	Major Increase

The proposed route modification does not result in a major increase or decrease in scheduled revenue miles or directional miles. It does however, result in a 25% or greater variance from the existing route alignment. Therefore, impacts to Title VI populations will be assessed.

Step 2 - Impacts on Title VI Population

Central South Mountain RAPID Realignmnet		
Current Enrollment	Percent Low-Income Households	Percent Minority Population
Eliminated Segment	49.4%	84.0%

The service area for the Central South Mountain East RAPID is well above average in both low-income and minority populations. Rerouting from Baseline and Central to 24th Street and Washington/Jefferson may negatively impact this population. However,

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Ridership on the existing route is extremely low with only 30 boardings per day. Because much of the existing route co-aligns with other service, it is hoped the new alignment has more appeal. In addition, construction on the South Central Light Rail Extension is due to begin in 2018 or 2019. This will disrupt a major portion of the existing alignment.

Public Outreach

The Public Transit Department will use the locally adopted public outreach process for the proposed April 2018 bus service changes, as outlined in the City of Phoenix Public Transit Title VI Program. Staff will solicit public comments on service changes through public outreach events and a formal public hearing. Advertisements for the public meetings will be placed in local newspapers; information will also be posted to the Phoenix Public Transit Department and Valley Metro websites.

The following public hearing has been scheduled to present the proposals to the public:

Public Hearing: November 14, 2017 5:00-6:15 p.m.
Valley Metro Board Room, 10th Floor
101 N. 1st Avenue. Phoenix, AZ 85003

Public input period is October 16, 2017 - November 17, 2017.

City of Phoenix Public Meetings

City of Phoenix Citizens Transportation Commission
November 30, 2017, 5 p.m.
302 N. 1st Ave., 7th Floor, Phoenix

City of Phoenix Transportation and Infrastructure Subcommittee
December 12, 2017, 9 a.m.
Phoenix City Hall, Assembly Rooms

City of Phoenix City Council Meeting
January 10, 2018, 2:30 p.m.
Phoenix City Council Chambers

Details about proposed service changes are available online and input can be provided with an online comment card. Please visit valleymetro.org/servicechanges. Comments can also be sent emailed to input@valleymetro.org or pubtrans@phoenix.gov -or mailed to:

Valley Metro Community Relations
Attn: Service Changes
101 N. 1st Ave., Ste. 1300
Phoenix, AZ 85003

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APPENDIX A

Project Maps

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Attachment I - Major Service Change Equity Evaluation

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City of Phoenix

Title VI Policy

Major Service Change Equity Evaluation Procedures Manual

October 2014

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City of Phoenix Public Transit Department

Introduction

The purpose of this document is to document guidelines and procedures used by the City of Phoenix Public Transit Department for evaluating potential bus service changes in the City of Phoenix (includes both service operated by the City of Phoenix and service purchased by the City of Phoenix) and bus service operated by the City of Phoenix in other jurisdictions.

Title VI of the Civil Rights Acts of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving federal financial assistance. Federal law requires the City of Phoenix to evaluate service changes and proposed improvements at the planning and programming stages to determine whether those changes have a discriminatory impact. This manual will be utilized to evaluate bus services in an objective manner to identify the potential for adverse, disproportionately high, or disparate impacts to minority and/or low income populations.

Guidelines

The City of Phoenix Title VI Policy is guided by two documents: City of Phoenix Title VI Ordinance adopted in 1990 (Attachment 1) and Valley Metro Title VI Procedures Manual adopted in 2013 (Attachment 2).

City of Phoenix Title VI Ordinance

The Ordinance adopted by the Council of the City of Phoenix in 1990 stated that public comment will be solicited for all fare increases and substantial transit service changes. Substantial service changes are defined as follows:

1. When there is any change in service of:
    a. 25 percent or more of the number of transit route miles of a route; or
    b. 25 percent or more of the number of transit revenue vehicle miles of a route computed on a daily basis for the day of the week for which the change is made.

2. A new transit route is established.

3. Exceptions;
    a. Headway adjustments of up to 5 minute peak hour and 15 minute non-peak hour service.
    b. Standard seasonal variations.
    c. An emergency situation, unless the emergency change will remain in effect for more than 180 days.
    d. Experimental service changes that will be instituted for 180 days or less. If the experimental service is to remain in effect for more than 180 days and meets the requirement for a public hearing, a hearing may be held anytime before the end of the 180 day period.

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4. Public hearing requirements;
    a. Prior to the institution of a fare increase or substantial service change, two notices of a public hearing shall be published in a newspaper of general circulation in the urbanized area. The notices shall also be published in newspapers oriented to specific groups or neighborhoods that may be affected.
    b. The first notice shall be published at least 30 days prior to the public hearing.
    c. The notices shall contain: (1) a description of the contemplated substantial services change and/or the fare increase as appropriate, and (2) the date, time and place of the hearing.

5. Applicability to Third Party Contract Requirements.
    Any agency or firm which operates public transit service within the Phoenix urbanized area utilizing Federal Transit Grant Funds provided by the City of Phoenix, shall follow the above process to solicit and consider public comment prior to any fare increase or substantial service change.

Valley Metro Title VI Procedures Manual – City of Phoenix Exceptions

The Valley Metro Title VI Procedures Manual was adopted by the Valley Metro Regional Public Transit Agency (RPTA) Board in 2013. The City of Phoenix Public Transit Department adheres to the guideline and procedure provided by the Manual with the following exceptions:

a. **Use of the Origin/Destination Survey as an Evaluation Method** - *Step 3: Socioeconomic Data Collection and Summation (Page 9 of Attachment 2).* For the demographic profile of residents near proposed service changes, the Valley Metro Title VI Procedures Manual recommends using U.S. Census Data or the Transit On-Board Origin-Destination Survey (O/D Survey). The City of Phoenix Public Transit Department will only use the U.S. Census Data as the source of demographic information for Title VI analysis. The following is the revised *Table 1. Service Change Equity Analysis Data Sources*

Category	Action	Sub Action	Evaluation Method
Service Span	Reduction	N/A	~~O/D~~ **Census Data**
	Expansion	N/A	
Service Headway	Reduction	N/A	~~O/D~~ **Census Data**
	Expansion	N/A	
Route Length	Reduction	N/A	~~O/D~~ **Census Data**
	Expansion	N/A	Census Data
Route Alignment	Reduced Alignment	N/A	~~O/D~~ **Census Data**
	Expanded Alignment	N/A	Census Data
	Modified Alignment	Eliminated Segment(s)	~~O/D~~ **Census Data**
		Segment(s) to New Areas	Census Data
New Route	New Route	N/A	Census Data

O/D: Origin/Destination Survey Data

The Census Data accounts for the demographic characteristics of the entire population whereas the O/D survey only considers current transit riders. Utilizing U.S. Census Data for demographic information instead of using O/D survey would allow

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the City of Phoenix to evaluate the impact of propose changes to the transit riders and the entire population residing within a half mile of the impacted area.

b. **Valley Metro Service Area Average**: *Step 3: Socioeconomic Data Collection and Summation (Page 10 of Attachment 2)*
For evaluating if a proposed service change would have a disproportionate impact to minority populations and/or have a disparate impact to a low-income population, the Valley Metro Title VI Procedures Manual recommends comparing the percentage of minority/low income population within half-mile of the impacted segments to the Valley Metro Service Area average.

The City of Phoenix Public Transit Department will compare the percentage of minority/low-income population within half-mile of the impacted segments to the Maricopa County average.

The Maricopa County averages of minority/low-income population are lower than the Valley Metro Service Area average. Comparing the impacted area to the Maricopa County average would allow City of Phoenix to be more stringent on identifying impacts to minority/low income populations.

c. **Title VI Analysis by Jurisdiction or Geographic Area**: *Step 5: Determination of Findings, Reporting, and Mitigation (Page 13 of Attachment 2)*
Under 4.1.1 Special Circumstances, the Valley Metro Title VI Procedures Manual stated that “an analysis of equity impacts may be considered to determine whether the proposed service modification adversely affects population residing within a specific jurisdiction or geographic area.”

The City of Phoenix does not view Title VI analysis by jurisdiction or geographic area as optional. Any Title VI equity impacts analysis by the City of Phoenix will evaluate the route as a whole and by jurisdiction. Thus an equity analysis will evaluate potential service changes for a particular route specifically by jurisdiction in addition to the overall route. This will insure maximum protection for low income and/or minority populations.

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Attachment 1

City of Phoenix Title VI Ordinance

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10-7 REV. 5-82

1990 OCT -8 PM 1:59

CITY CLERK DEPT

GREEN — CITY CLERK
WHITE — CITY ATTORNEY
BLUE — CITY MANAGER
PINK — ACCOUNTS NOTIFICATION
CANARY — DEPARTMENT NOTIFICATION
BUFF — DEPARTMENT FILE COPY

CITY OF PHOENIX, ARIZONA

REQUEST FOR COUNCIL ACTION

ALL RCA'S MUST BE IN THE CITY MANAGER'S OFFICE BY NOON ON THE TUESDAY, SEVEN DAYS BEFORE THE FORMAL CITY COUNCIL MEETING WITH ALL REQUIRED SIGNATURES. COMPLETE THIS FORM PER M.P. 1.906.

1. To the City Manager:

DATE October 3 19 90

THE FOLLOWING COUNCIL ACTION IS HEREBY REQUESTED: ☐ ORDINANCE ☒ RESOLUTION ☐ FORMAL ACTION.

CITYWIDE

RESOLUTION ESTABLISHING A FORMAL, LOCALLY ADOPTED PROCESS FOR THE SOLICITATION AND CONSIDERATION OF PUBLIC COMMENT PRIOR TO TRANSIT FARE INCREASES AND SUBSTANTIAL SERVICE CHANGES

A Resolution is requested to establish a formal, locally adopted process for the solicitation and consideration of public comment prior to transit fare increases and substantial service changes. The Urban Mass Transportation Act of 1964, as amended, requires that a formal locally adopted process be established by recipients of federal transit grant funds.

Public comment will be solicited for all fare increases and substantial transit service changes. Substantial service changes are defined as follows:

1. When there is any change in service of:

   a) 25 percent or more of the number of transit route miles of a route; or

   b) 25 percent or more of the number of transit revenue vehicle miles of a route computed on a daily basis for the day of the week for which the change is made.

2. A new transit route is established.

3. Exceptions:

   a) Headway adjustments of up to 5 minutes peak hour and 15 minutes non-peak hour service.

   b) Standard seasonal variations.

   c) An emergency situation, unless the emergency change will remain in effect for more than 180 days.

(Continued)

2. Bid Bond (Surety) Required? ☐ Yes ☒ No

3. Bond submitted by low bidder? ☐ YES ☒ NO

4. Performance Bond (Surety) Required? NO $

5. SOURCE OF FUNDS:

INDEX CODE | SUBOBJECT | PROJECT

$

☐ BUDGETED ☐ SUPPLEMENTAL ☐ CONTINGENCY

12. Recommended by:

Department/Function: Public Transit Department

Division Head Signature

Department Head Signature: W E Manske
Acting Public Transit Director

6. Emergency Clause? ☐ YES ☒ NO

IF LESS THAN FIVE COUNCIL MEMBERS ARE PRESENT:
☐ CONTINUE ONE WEEK
☒ ADOPT WITHOUT EMERGENCY CLAUSE

7. Requested by: Al Villaverde Phone #: 27242

8. WP Document #: 0209j

9. Desired Agenda Date: 10-17-90

10. Formal contract required? ☐ Yes ☒ No

Previous contract #

11. Requisition #:

13. Approved as to availability of funds:

MANAGEMENT & BUDGET DIRECTOR

14. Approved:

Assistant to the CITY MANAGER

15. Council action taken:

Formal action: RESOLUTION NO. 17773 ORDINANCE NO. DATE 10/17 19 90

CONTRACT NO. 2P22

F-011
CITY CLERK'S FILE NO.

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d) Experimental service changes that will be instituted for 180 days or less. If the experimental service is to remain in effect for more than 180 days and meets the requirements for a public hearing, a hearing may be held anytime before the end of the 180 day period.

4. Public hearing requirements:

a) Prior to the institution of a fare increase or substantial service change, two notices of a public hearing shall be published in a newspaper of general circulation in the urbanized area. The notices shall also be published in newspapers oriented to specific groups or neighborhoods that may be affected.

b) The first notice shall be published at least 30 days prior to the public hearing.

c) The notices shall contain: (a) a description of the contemplated substantial service change and/or the fare increase as appropriate, and (b) the time and place of the hearing.

5. Applicability to Third Party Contract Requirements

Any agency or firm which operates public transit service within the Phoenix urbanized area utilizing federal transit grant funds provided by the City of Phoenix, shall follow the above process to solicit and consider public comment prior to any fare increase or substantial service change.

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RESOLUTION NO. 17773

A RESOLUTION ESTABLISHING A FORMAL, LOCALLY ADOPTED PROCESS FOR THE SOLICITATION AND CONSIDERATION OF PUBLIC COMMENT PRIOR TO TRANSIT FARE INCREASES AND SUBSTANTIAL SERVICE CHANGES.

WHEREAS, the Urban Mass Transportation Act of 1964, as amended, requires that a formal, locally-adopted process be established by recipients of Federal Transit Grant Funds;

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF PHOENIX as follows:

That the following formal, locally-adopted process for the solicitation and consideration of public comment prior to transit fare increases and substantial services changes be, and it is hereby, adopted. The process for the solicitation and consideration of public comment shall be as follows:

Public comment will be solicited for all fare increases and substantial transit service changes. Substantial service changes are defined as follows:

1. When there is any change in service of:

   a. 25 percent or more of the number of transit route miles of a route; or

   b. 25 percent or more of the number of transit revenue vehicle miles of a route computed on a daily basis for the day of the week for which the change is made.

2. A new transit route is established.

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3. Exceptions:

   a. Headway adjustments of up to 5 minutes peak hour and 15 minutes non-peak hour service.

   b. Standard seasonal variations.

   c. Emergency changes that will remain in effect for 180 days or less. If the emergency change is to remain in effect for more than 180 days and meets the requirements for a public hearing, a hearing shall be held at anytime prior to the end of the 180 day period.

   d. Experimental service changes that will be instituted for 180 days or less. If the experimental service is to remain in effect for more than 180 days and meets the requirements for a public hearing, a hearing shall be held at anytime prior to the end of the 180 day period.

4. Public hearing requirements:

   a. Prior to the institution of a fare increase or substantial service change, two notices of a public hearing shall be published in a newspaper of general circulation in the urbanized area. The notices shall also be published in newspapers oriented to specific groups or neighborhoods that may be affected.

   b. The first notice shall be published at least 30 days prior to the public hearing.

   c. The notices shall contain: (1) a description of the contemplated substantial services change and/or the fare increase as appropriate, and (2) the date, time and place of the hearing.

5. Applicability to Third Party Contract Requirements.

   Any agency or firm which operates public transit service within the Phoenix urbanized area utilizing Federal Transit Grant Funds provided by the City of Phoenix, shall follow the above process to solicit and consider public comment prior to any fare increase or substantial service change.

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PASSED by the Council of the City of Phoenix this 17 day of October, 1990.

MAYOR

ATTEST:

Vicky Neil, City Clerk

APPROVED AS TO FORM:

ACTING City Attorney

REVIEWED BY:

Asst. City Manager

1990 OCT 17 PM 12:39
CITY CLERK DEPT.

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-3- Resolution No. _____

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Attachment 2

Valley Metro Title VI Procedures Manual

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Valley Metro
Title VI Procedures Manual

May 2013

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1.0 INTRODUCTION

This document is intended to provide guidance on the procedures used to evaluate service and fare adjustments considered by Valley Metro. In addition, the document includes a review of the regulatory framework for Title VI and specifies the performance metrics and thresholds Valley Metro has established to ensure equity in the delivery of public transportation services in the greater Phoenix metropolitan region.

2.0 TITLE VI STATUTES AND AUTHORITIES

Title VI of the Civil Rights Act of 1964 (as amended) provides that “no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance” (23 CFR 200.9 and 49 CFR 21). The Civil Rights Restoration Act of 1987 broadened the scope of Title VI by expanding the definition of terms "programs or activities" to include all programs or activities of Federal Aid recipients, sub-recipients, and contractors, whether such programs and activities are federally assisted or not (Public Law 100259 [2.557] March 22, 1988). In 1994, Executive Order 12898 extended protections similar those defined in the Civil Rights Act of 1964 to low-income populations.

The intent of Valley Metro’s Title VI program and policies is to define the roles and responsibilities of agency departments to the public with respect to the delivery of transit services to ensure full compliance with Title VI. As a sub-recipient of federal-aid funds for transit services and capital projects, Valley Metro is subject to the statutes and regulatory requirements of Title VI. It is the mission of Valley Metro to promote the equitable allocation of agency resources and to prevent discrimination in the production of regional public transportation services. As the greater Phoenix metropolitan region’s primary transit agency providing service to Maricopa County, fourteen incorporated municipalities, and millions of area residents and annual visitors, Valley Metro is responsible for demonstrating that public transportation services, capital improvement programs, and agency service policies adhere to the non-discrimination principals of Title VI, and that the benefits of services or capital programs are to be distributed equitably to all populations. Further, it is the intent of these service policies and standards to ensure that capital improvements or changes to services be objectively evaluated to identify the potential for adverse, disproportionately high, or disparate impacts to minority and/or low-income populations.

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Valley Metro takes an interdisciplinary approach to Title VI by involving all agency departments. Working with state and federal agencies, regional and local governments, community organizations, and the public at-large, Valley Metro seeks to implement plans, programs, and service delivery policies that follow the intent of Title VI to address the interests and diverse needs of all populations in the transportation planning and service delivery process. In addition to federal Title VI compliance requirements, Valley Metro promotes public involvement policies and strategies to include minority and/or low-income communities in the decision-making process related to transit service programs and activities. Valley Metro's Title VI analysis efforts, the procedures for which are defined in this document, are intended to:

- Improve transportation decisions to meet the needs of all people.
- Improve data collection, monitoring, and analysis processes to assess the needs of and understand potential impacts to minority and/or low-income populations.
- Promote collaboration with local public agencies, community-organizations, and private businesses to leverage Valley Metro agency resources and the needs of specific communities in order to achieve a common vision for transportation services to area communities.
- Avoid, minimize, or mitigate identified disproportionate and/or disparate impacts with early identification of community concerns in the planning process.
- Promote context-sensitive design solutions for existing and future transportation facilities that fit aesthetically and harmoniously into surrounding communities, reflecting the diversity of greater Phoenix metropolitan region.
- Counterbalance initiatives and enhancement measures to benefit communities and neighborhoods affected by project or policy actions.

Providing the public with early, continuous, and meaningful access to the transportation planning, project development, and capital improvement program decision-making processes is a fundamental principle of Title VI. Valley Metro embraces this concept, and through the creation of this document, outlines the procedural steps for evaluating equity as part of the decision-making process when considering transit service changes or adjustments to transit fares. The following sections detail Valley Metro's approach to data collection and analysis methods in the determination of potential impacts, along with actions to mitigate, offset, or eliminate equity impacts.

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3.0 TITLE VI PROGRAM ADMINISTRATION AND RESPONSIBILITIES

This section outlines the organizational structure of Valley Metro's Title VI program, defining the roles and responsibilities of agency departments, and the responsibilities of the Title VI Coordinator with respect to the delivery of transit services, policies, and programs to ensure full compliance with Title VI of the Civil Rights Act of 1964 (as amended).

3.1 TITLE VI DELEGATION CHART

The implementation, administration, and continuing oversight of Valley Metro's Title VI program and policies are the responsibility of Valley Metro's Chief Executive Officer (CEO). With the assistance of Valley Metro staff members and/or project consultants (as necessary) the CEO is responsible for ensuring Title VI compliance in the planning, project development, and service delivery activities of Valley Metro. Subsequently, the CEO has delegated the responsibilities for day-to-day oversight of Title VI program to the Planning and Development Department. This department has been designated the as the lead division responsible for providing oversight authority for Valley Metro's Title VI program. This department is responsible for reviewing, evaluating, and identifying potential Title VI issues, and ensuring that all Title VI reporting requirements are fulfilled. The Planning and Development Department is also responsible for communicating with other agency departments on the implementation of Valley Metro's Title VI program.

Within the Planning and Development Department a Title VI Coordinator is responsible for the management of Valley Metro's Title VI program, and serves as the Title VI Liaison Officer with the region's designated recipient of federal funds (the City of Phoenix). The day-to-day administration of the Title VI program lies with the coordinator, under the supervision of the Director of the Planning and Development Department. Figure 1 provides an organizational chart for Valley Metro's Title VI program, identifying the responsibilities by department.

Figure 1. Valley Metro Title VI Program Organizational Chart

<table>
<tr><td colspan="6">CEO</td></tr>
<tr><td colspan="6">Chief of Staff</td></tr>
<tr><td colspan="6">General Counsel</td></tr>
<tr><td>Organizational Management</td><td>Communications</td><td>Capital Programs</td><td>Finance</td><td>Operations</td><td>Planning and Development</td></tr>
<tr><td colspan="5"></td><td>Title VI Coordinator</td></tr>
</table>

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As an institution-wide compliance requirement, Title VI must be incorporated into the operating plans and programs of all agency departments responsible for producing and administering public goods that use federal dollars. Under supervision of the Title VI Coordinator, Valley Metro staff may be periodically asked to accept or share responsibility for day-to-day administration of the Title VI program, including implementation of the Title VI plan and compliance, program monitoring and reporting, and education within an applicable program area. Because this document is focused on the procedural methods used to analyze service and fare adjustments, the roles and responsibilities of individuals within each department of Valley Metro for Title VI will be outlined in a separate document.

3.2 TITLE VI COORDINATOR RESPONSIBILITIES

The Title VI Coordinator shall be responsible for coordinating the day-to-day administration of Valley Metro's Title VI program, plan, and procedures. The Title VI Coordinator serves under the supervision of the Director of the Planning and Development Department within Valley Metro. The Title VI Coordinator is responsible for supervising activities pertaining to Title VI regulations and procedures set forth in Federal guidance and in accordance with Valley Metro's Title VI Service and Fare Equity Procedures Manual. In support of this, the Title VI Coordinator shall be responsible for the following:

- Identify, investigate, and work to eliminate discriminatory practices in the provision of public transportation services when determined to exist.
- Review and process Title VI complaints received by Valley Metro.
- Meet with appropriate staff members to monitor and discuss progress, implementation, and compliance issues related to Valley Metro's Title VI program.
- Periodically review the agency's Title VI program to assess whether administrative procedures are effective, staffing is appropriate, and adequate resources are available to ensure compliance.
- Work with Valley Metro staff involved with consultant contracts to resolve any deficiency status found, and write a remedial action if necessary, as described in the Consultant Contracts section of this plan.
- Disseminate information on Valley Metro's Title VI program and policies to agency employees, contractors, and beneficiaries as well as the general public.
- Review important Title VI-related issues with Valley Metro's Chief Executive Officer, and other officers of the agency, as needed.

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- Assess communications and public involvement strategies to ensure adequate participation of impacted Title VI-protected groups and address additional language needs when needed.
- Serve as the Title VI Liaison Officer with the region's designated recipient of federal funds.

4.0 PROCEDURES FOR ANALYZING TRANSIT SERVICE AND FARE ADJUSTMENTS

In order to remain in compliance with FTA Circular 4702.1B, Valley Metro must conduct a review of proposed service changes and any proposed fare adjustments to determine if the changes have a discriminatory impact to protected populations. The following section details the analysis procedures the Title VI Coordinator (or their designee) will be responsible for administering to evaluate transit service changes or fare adjustments with regard to social equity.

4.1 TRANSIT SERVICE CHANGES

Participating municipalities that contract with Valley Metro for transit services propose changes to some existing services, or may propose new transit services. Adjustments to existing services are made to accommodate changes in ridership demand, to promote enhanced connections between bus, rail, and other transit services, or may be based on funding fluctuations. Service changes are initially proposed by member municipalities, and coordinated with Valley Metro service development staff. Proposed changes may also be based on input from customers, employees, service design studies, requests from other local operators, and performance monitoring results.

Changes to existing transit services may occur in a variety of formats. Transit routes (bus, train, or other specialized services) may be shortened or extended in total length, re-routed to serve new streets or geographic areas, or eliminated from service. However, changes to transit services can have significant consequences for system users who rely on public transportation for basic mobility. Therefore, service changes are measured in the indices of discrimination to ensure that any changes made to transit services are equitable under the compliance requirements of Title VI and Executive Order 12898.

Prior to approval, proposed service changes must undergo a technical evaluation conducted or overseen by the Title VI Coordinator. Federal requirements for meeting Title VI standards obligate recipients and sub-recipients of federal funds to collect and maintain data used for socioeconomic analyses. These data are useful in the

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determination of whether or not protected populations reside within the area of analysis, whether adverse, disparate, or disproportionate impacts and/or burdens could occur as the result of a project, service or fare change,

The purpose of the evaluation is to define and evaluate the potential impacts on riders to develop appropriate mitigation measures (as necessary).

The research and determination process of the equity analysis will follow the steps listed below:

1. Notification of Transit Service Changes to Valley Metro
2. Identification of "Major Service Changes"
3. Data Collection and Summation
4. Analysis Process
5. Determination of Findings, Reporting, and Mitigation

Step 1: Notification of Transit Service Changes to Valley Metro

All fixed-route bus and rail transit service modifications proposed are required to be evaluated for potential Title VI impacts during the planning process. All potential transit service modifications shall be submitted to the Valley Metro System and Service Development Manager no earlier than five (5) months prior to the proposed implementation date to provide adequate time to conduct a Title VI analysis and associated public outreach activities. For example, potential transit service changes proposed for implementation on July 1st must be submitted to Valley Metro's Title VI Coordinator no later than February 1st. Likewise, transit service changes proposed for January 1st must be submitted no later than August 1st. If service changes are submitted by municipalities after the specified dates for submittal, the requested service changes will not be considered for implementation until the next round of service changes. For example, service changes submitted after February 1st requesting implementation on July 1st will be considered for service changes. The municipality requesting the change will be responsible for funding the existing service until it may be changed in the next round of service adjustments.

Note: The schedule for when proposed service modifications must be submitted to Valley Metro is predicated by the time necessary to analyze the proposed modifications for equity, conduct a public engagement process to notify the public of planned service changes and receive feedback, re-evaluate proposed service modifications (as deemed necessary) and consider necessary mitigation measures to offset potential effects, and submit the proposed modifications to the respective Valley Metro Boards of Directors

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(both the Valley Metro Rail, Inc. Board of Directors and the Regional Public Transportation Authority Board of Directors) for approval.

Step 2: Identification of a "Major Service Change"

Following the submission of requested service changes, Valley Metro's Title VI Coordinator will conduct a review of the proposed service changes to identify whether any of the changes (individually) qualify as "Major Service Changes". Valley Metro has established a threshold of 25% for determining whether proposed changes to transit services are considered "Major Service Changes".[1]

The following types of service changes are considered "Major Service Changes", and will be evaluated in accordance with the regulatory requirements set forth in FTA Circular 4702.1B:

1. **Route-Level Service Reduction or Elimination**

   - Reducing an existing route by more than 25% of weekday route revenue miles[1], or
   - Reducing an existing route by more than 25% of Saturday route revenue miles[1], or
   - Reducing an existing route by more than 25% of Sunday route revenue miles[1], or
   - Reducing the number of route directional miles more than 25%[1], or
   - A change in a route alignment resulting in a 25% or greater variance from the existing route alignment[1].

2. **Route-Level Expansion or Addition of a New Route**

   - Adding a new route, or
   - Expansion of an existing route that increases weekday route revenue miles by more than 25%[1], or
   - Expansion of an existing route that increases Saturday route revenue miles by more than 25%[1], or
   - Expansion of an existing route that increases Sunday route revenue miles by more than 25%[1], or
   - Expanding the number of route directional miles more than 25%[1], or

[1] A change of 25% in weekly route revenue miles and/or route directional miles is the current City of Phoenix threshold for determining whether a potential transit service change qualifies as a major service change (or "substantial" service change) according to the City of Phoenix resolution (1990). This percentage is generally an industry-wide percentage threshold used by peer transit systems throughout the United States. The City of Phoenix resolution also specifies that a public comment period will be initiated when a change in transit service of 25% or more is determined.

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- A change in a route alignment resulting in a 25% or greater variance from the existing route alignment[1].

As an example of what constitutes a "Major Service Change," if Route A is ten (10) miles in total length, and is proposed to be changed by three (3) miles, this change would result in a 30% change in route length, and therefore qualify as a "Major Service Change." As a result of achieving a service change above the 25% threshold, this would trigger the need to conduct a formal Title VI review of the proposed change as it relates to transportation equity.

Conversely, if Route A is proposed to be changed by only one (1) mile, this would amount to a 10% change in total length, and therefore not be considered a "Major Service Change". As a result, a formal Title VI analysis is not necessary. The Title VI Coordinator should document this finding, and may move forward without any further action on this service change, concentrating only on those changes that are identified as a "Major Service Change".

While the above example presents a simple example of a service change, there are other forms of service changes that could constitute a "Major Service Change" that must also be evaluated for equity. Changes in service span, frequency (headways), or route alignment can all result in changes to existing service that are greater than 25%. For example, if Route A currently operates at 10 minute frequencies, and is proposed to change to 12 minute frequencies, this would result in one less trip per hour. This would not be a major service change, because the difference amounts to a 16% change. However, if the same route were reduced to 15 minute frequencies, the resulting number of trips would be four (4) per hour as compared to six (6) currently. This amounts to a 33% difference in the number of trips, above the 25% change threshold. The Title VI Coordinator shall be responsible for determining the appropriate course of action for evaluating service changes based on the type of change proposed.

It is important to note that Valley Metro may conduct a formal Title VI evaluation for potential service modifications based on local knowledge of a transit route's ridership demographic or the demographic characteristics of the route's service area. Specifically, there may be instances when proposed changes to a bus route may not result in being a "Major Service Change", but it is known that the route is predominantly used by minority and/or low-income populations, or serves a geographic area that is predominantly populated by minority and/or low-income populations. These circumstances are discussed further in the section entitled "Special Circumstances" below.

The complete adopted service change equity policy is provided in Appendix A.

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Step 3: Socioeconomic Data Collection and Summation

Once a transit service change has been identified as being a "Major Service Change," the Title VI Coordinator shall collect the appropriate demographic data to complete a ridership profile of system users along the route the service change is being considered. To identify minority and/or low-income populations in the service area, the Title VI Coordinator will gather data from the U.S. Census Bureau and the most recently complete, statistically valid Transit On-Board Origin-Destination Survey (O/D Survey) shall be collected and reviewed. Demographic data to be collected may include information on the race and ethnicity, national origin, linguistic isolation and English proficiency, household and per capita income and employment, and poverty information (among other sources of data as deemed appropriate). Table 1 provides an outline of the data sources to be used for each type of transit service change.

Table 1. Service Change Equity Analysis Data Sources

Category	Action	Sub Action	Evaluation Method
Service Span	Reduction	N/A	O/D[a] profile data of affected route
	Expansion	N/A	
Service Headway	Reduction	N/A	O/D[a] profile data of affected route
	Expansion	N/A	
Route Length	Reduction	N/A	O/D[a] Data
	Expansion	N/A	Census Data
Route Alignment	Reduced Alignment	N/A	O/D[a] Data
	Expanded Alignment	N/A	Census Data
	Modified Alignment	Eliminated Segment(s)	O/D[a] Data
		Segment(s) to New Areas	Census Data
New Route	New Route	N/A	Census Data

[a] Origin/Destination Survey Data

The FTA recommends the use of on-board survey data to evaluate equity when considering service modifications to existing routes, including route length reductions, span of service changes, or service headway modifications that do not affect a transit route's alignment. The on-board survey produces the most accurate information available on existing route patronage, and is therefore a useful tool in assessing potential equity implications related to proposed service modifications. Similarly, the use of decennial Census data is important toward setting the geographic context of the service area a route provides service too. When existing routes are proposed to be extended to serve new geographic areas, or entirely new routes are proposed, Census data provide the best review of existing demographic characteristics of the area to be served as on-board survey data are not available. Coupled together, both the Transit

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On-Board Origin-Destination Survey and the Census data provide two data sources that offer the most accurate portrayal of both a transit route and the transit system's demographic composition of system users.

Note: In order to maintain consistency with the datasets used in an equity analysis, the percentage of minority and low-income populations will be determined using either US Census data or origin/destination survey data, and dependent on the type of analysis being conducted. More specifically, US Census data provides a geographic portrait of demographic characteristics within the Valley Metro service area. The service area percentage is derived by selecting all of the Census tracts (or other Census geographic units) within the service area and determining the minority and low-income populations relative to the entire population of the service area. The service area is different from the system-wide percentage that refers to the percentage of minority and/or low-income passengers currently using available transit services. The system-wide percentage is determined based on the current ridership data available through the Valley Metro Origin/Destination Survey. Therefore, when conducting an analysis of whether a "Major Service Change" has the potential to result in equity impacts, if the proposed service modification extends service to a new geographic area currently not served by transit, the analysis will compare the data for the new Census units served (per Table 1 above) with the minority and low-income population percentages for the Valley Metro service area. If the proposed service modification results in shortening a route or eliminating a route segment, the analysis will use the Valley Metro Origin/Destination Survey data (because this route is already in operation), and compare the minority and/or low-income ridership data of the affected route to the Valley Metro system-wide percentage of existing users. Table 2 provides the current minority and low-income population percentages for both the Valley Metro service area and the system (2010-2011). This table is for example purposes only, and will need to be periodically modified with the issuance of updated demographic data.

Table 2. Valley Metro Minority and Low-Income Population Percentages (2010-2011)

Data Set	Minority	Low-Income
Valley Metro Service Area (Census)	45.6%	15.8%
Valley Metro System-Wide Percentage (O/D Survey)	56.2%	50.6%

When collecting and interpreting Census data for route extensions or new routes, data will be collected using a one-half (1/2) mile radial buffer surrounding the proposed extension. The Title VI Coordinator (or designated analyst) will buffer the proposed route extension in the new geographic region served. Any Census unit that is either fully or partially located within the buffered area will be included as part of the analysis. The

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analysis will not be conducted on a proportional basis, only the total populations of minority and low-income persons will be considered.

For bus routes identified as express services (including fixed-route express buses and City of Phoenix RAPID services), a one-half mile radial buffer will be established around the morning inbound route stops. This approach is used because unlike local fixed-route services, express buses offer point-to-point service over a longer distance, and do not pick-up or drop-off passengers when operating on arterial roads or regional highways. While most express routes provide service to park-and-ride facilities that often have a travel shed of five (5) miles or more, a one-half mile buffer will still be used. Typically, park-and-rides are located in areas where the geographic size of Census units is sufficiently large enough to cover the travel shed of commuters who park-and-ride transit services. Note: stops in downtown Phoenix will not be evaluated. Several express bus routes make two stops in downtown: one stop at Central Station to connect passengers with local bus services, and a second stop at the State Capitol complex. While some passengers may board an express route bus at Central Station to reach the State Capitol complex (thereby treating an express service as if it were a local service), the number of these boardings is very small and do not reflect the profile of typical users along the route.

Step 4: The Analysis Process

Having established which service changes proposed are deemed “Major Service Changes”, and collecting the appropriate demographic data, the analysis now seeks to identify the equity implications associated with making the proposed service changes. An overall baseline ridership profile for each individual existing route will be developed using the Transit On-Board Survey data. For proposed new routes, the decennial Census data will be used. Refer to Table 1 to determine the appropriate data source for each unique type of service change that may be proposed.

Using the baseline information, the Title VI Coordinator will develop a profile of the ridership along an affected route by affected population groups. The percentage of minority and/or low-income populations using the route will be compared to the percentage of minority and/or low-income populations using the entire regional transit system. The determination of a disparate burden will be based on meeting both of the following criteria:

- For service level or service area reductions, if the percentage of minority passengers on an affected route is greater than the transit system’s minority ridership (within the appropriate dataset’s margin of error) by transit classification

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(local, express, neighborhood circulators, and rural bus)[2] a determination of a minority disparate impact will be determined.

- If a service level expansion or service area expansion is considered that coincides with a reduction in transit service on the same route or other routes, and the route(s) considered for service expansion predominantly serve non-minority geographic areas while the route(s) considered for reduction predominantly serve minority geographic areas, then a disparate burden may be determined.

The determination of a disproportionate burden will be based on meeting both of the following criteria:

- If the percentage of low-income passengers on an affected route considered for service reduction is greater than the transit system's low-income ridership percentage (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus)[2], and
- If the percentage of low-income passengers on an affected route considered for service expansion is less than the transit system's low-income ridership percentage (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus).[2]

Referring to the earlier example of Route A, the determination of a Title VI impact rests in a combination of the major service change determination and the demographics of the route. For example, if Route A is ten (10) miles in total length, and is proposed to be changed by three (3) miles (a 30% reduction in route length), and the ridership of Route A is 55% minority versus the system-wide minority average of 50%, the proposed change in route length would therefore be considered an equity impact to minority populations, resulting in a Title VI impact.

Conversely, if Route A is ten (10) miles in total length, and is proposed to be changed by three (3) miles (a 30% reduction in route length), and the ridership of Route A is 42% minority versus the system-wide minority average of 50%, the proposed change in route length would therefore not result in an equity impact to minority populations.

[2] Local routes include local fixed-route bus, light rail, LINK bus, local limited stop bus. Express routes include express bus and RAPID bus. Circulator routes will be evaluated similarly to local routes for fare adjustments and major services changes, but will be considered separately from local and express services when considered in the context of a region- or system-wide Title VI analysis. Circulator bus services are provided by the municipalities they serve and not the regional transit agency.

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Step 5: Determination of Findings, Reporting, and Mitigation

Following the analysis and determination of whether proposed service changes that are deemed "Major Service Changes" will have positive or negative effects to minority and/or low-income populations, the Title VI Coordinator will prepare a concise memorandum or report of the analysis findings. The findings will describe the process and data sources used to evaluate equity implications, results of the analysis, and make recommendations on any mitigation measures that may be appropriate to resolve equity issues. Appendix C to this report contains an example of a Title VI review of proposed service changes for reference.

Should the analysis findings determine that disparate or disproportionate impacts exist, and all reasonable accommodations have been made to offset these impacts, Valley Metro may move forward with the service changes as proposed provided it may be demonstrated that without the proposed changes further undue hardship on the transit system is unavoidable. The FTA's Circular 4702.1B provides transit agencies with the flexibility to implement service changes, even if those changes would have a disparate or disproportionate impact to protected populations. However, it must be clearly demonstrated that without the changes in service, severe consequences to operations would result that would have a detrimental affect to transit service for the community at-large.

4.1.1 Special Circumstances

In certain cases proposed service modifications could result in changes to transit services that operate through geographic areas which have traditionally been populated by minority and/or low-income communities. The proposed service modification may not qualify as a "Major Service Change", and the route(s) being considered for a service modification may or may not be identified as minority or low-income route. However, an analysis of equity impacts may be considered to determine whether the proposed service modification adversely affects populations residing within a specific jurisdiction or geographic area.

In cases where service modifications are made within a jurisdiction, neighborhood, or other specialized geographic location that do not result in a change of 25%, but the Title IV Coordinator (or designated analyst) believes an analysis is warranted given the demographic characteristics of area populations, an analysis using both U.S. Census Bureau and the Transit On-Board Origin-Destination Survey will be conducted. Data from the Transit On-Board Survey will produce statistics on current ridership trends among minority and/or low-income populations. This data will be considered in the context of U.S. Census Bureau data that provides a geographic assessment of

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surrounding corridor populations. If the Census data suggest that 25% or more of the Census units surrounding the location of the proposed service modification are predominately minority and/or low-income (defined as having a higher percentage of minority and/or low-income residents than the regional transit service area average), an evaluation of equity impacts will be conducted. Using both datasets in support of one-another will help to ensure equity is considered from all available quantitative and qualitative aspects.

4.2 CHANGES TO TRANSIT FARES

Periodically, it is necessary for Valley Metro to increase fares to offset operating cost increases. Fares are adjusted when it is determined that changes to transit services (as described above) alone can no longer sufficiently reduce operating expenses. In addition to service changes, fare structures are monitored in the indices of discrimination for disparate treatment because fare adjustments could cause minority and/or low-income riders to bear a higher average fare burden than non-minority and/or non-low-income riders. The purpose of the evaluation is to define and evaluate the potential impacts on riders and to develop appropriate mitigation measures (as necessary).

The research and determination process of the fare equity analysis will follow the steps listed below:

1. Notification of Transit Fare Changes to Valley Metro
2. Data Collection and Summation
3. Analysis Process
4. Determination of Findings, Reporting, and Mitigation

Step 1: Notification of the Proposed Fare Adjustments

All potential fare adjustments (increases or decreases) are required to be evaluated for Title VI impacts during the planning process. If it is determined that adjustments to transit fares must be made, all potential fare adjustments shall be submitted to the Valley Metro Title VI Coordinator no earlier than nine (9) months prior to the proposed implementation date to provide adequate time to conduct a Title VI analysis and associated public outreach activities. For example, transit fare adjustments planned for implementation on July 1st would need to be submitted to Valley Metro's Title VI Coordinator no later than October 1st of the previous year. Similarly, transit fare adjustments planned for implementation on January 1st must be submitted to Valley Metro's Title VI Coordinator no later than April 1st of the previous year. This schedule is necessary to evaluate the proposed fare adjustments for equity and to consider any

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mitigation measures (if applicable), conduct a public engagement process, and submit the proposed fare adjustments to the respective Valley Metro Boards of Directors (both the Valley Metro Rail, Inc. Board of Directors and the Regional Public Transportation Authority Board of Directors) for approval. Should the fare adjustments be approved by the respective Boards of Directors, a subsequent public engagement process will begin to notify the public of the date planned fare adjustments will go into effect.

Step 2: Socioeconomic Data Collection and Summation

The Title VI Coordinator will collect the necessary demographic and farebox data for the analysis of fare adjustments. Demographic data may be collected from sources including the decennial Census, American Community Survey (ACS) (provide by the U.S. Census Bureau), and the most recent statistically valid Transit On-Board Survey. The analysis of fare adjustments as they relate to existing system users and current fare media will use origin/destination data obtained from the Transit On-Board Survey. For the spatial consideration of where minority and/or low-income communities are located within the Valley Metro service area (to determine the distribution of off-board fare outlets for example) Census data will be used. Table 3 outlines the data resources for assessing fare adjustments.

Table 3. Fare Adjustment Equity Analysis Data Sources

Category	Action	Sub Action	Evaluation Method
Fare	Adjustment	N/A	O/D profile data of affected fare category and/or Census data

In addition to considering data from the O/D Survey, the Title VI Coordinator may need to retrieve data from non-traditional sources or other agencies to supplement the analysis. For example, large employers maintain data on the number of employees who have access to subsidized transit passes. The Title VI Coordinator may need to obtain this data periodically to evaluate the number of minority and/or low-income passengers with access to these passes, as compared to non-minority and non-low-income passengers.

Step 3: The Analysis Process

Two initial steps will be conducted at the start of the analysis process. These steps may be conducted concurrently, or one step may be completed first followed by the next step.

- Similar to the analysis of proposed service changes, a demographic profile of system users and the service area will be constructed (if a ridership profile was

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not created previously should no service changes exist and only a fare adjustment is proposed). This profile will serve as the baseline condition by which the proposed fare adjustment(s) will be evaluated to determine potential impacts based on socioeconomic characteristic. The profile will be constructed using available socioeconomic data from the U.S. Census Bureau and/or the most recently completed, statistically valid Transit On-Board Survey.

- The proposed fare adjustment(s) will be categorized into corresponding fare categories (local and express) and fare media (cash, multi-day or monthly passes). The percentage change in each fare category or media will be calculated, showing the percentage difference between the current fare and the proposed fare structure. Currently, Valley Metro identifies fares for local fixed-route bus, LINK service, and light rail as local fares, while express bus and City of Phoenix RAPID bus services are considered express fares. Table 4 below demonstrates the calculation of percentage change.

Table 4. Example Proposed Fare Structure with Percentage Change

Fare Type	Current Fare	Proposed Fare	Percentage Change
Local Bus, LINK, and Light Rail – Standard Fare			
1-Ride	$1.75	$2.00	14.3
All-Day Off-Board	$3.50	$4.00	14.3
All-Day On-Board	$5.25	$6.00	14.3
3-Day	$10.50	-	Eliminated
7-Day	$17.50	$20.00	14.3
15-Day	-	$33.00	New Fare Media
31-Day	$55.00	$64.00	16.4
Express Bus and RAPID – Standard Fare			
1-Ride	$2.75	$3.00	9.1
All-Day Off-Board	$5.50	$6.00	9.1
All-Day On-Board	$7.25	$9.00	24.1
31-Day	$85.00	$96.00	12.9
Reduced Local Fares - Local Bus, LINK, and Light Rail			
1-Ride	$0.85	$1.00	17.6
All-Day Off-Board	$1.75	$2.00	14.3
All-Day On-Board	$2.60	$3.00	15.4
3-Day	$5.25	-	Eliminated
7-Day	$8.75	$10.00	14.3
15-Day	-	$16.50	New Fare Media
31-Day	$27.50	$32.00	16.4
ADA Dial-a-Ride Fare			
1-Ride	$3.50	$4.00	14.3
Rural Connector Fare			
1-Ride	$3.25	$4.00	23.1

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With these two steps completed, the third step in the analysis process is to consider the percentage point variance (or difference) between local and express fare categories. The following threshold shall be used for determining if a fare adjustment will result in a minority disparate impact or low-income disproportionate impact:

- If a planned transit fare adjustment results in minority and/or low-income populations bearing a fare rate change of greater than 4 percentage points as compared to non-minority and/or non-low-income populations and, the resulting effect will be considered a minority disparate impact or low-income disproportionate burden respectively.

By example, referring back to Table 3, the one (1) ride local cash fare is slated to increase by 14.3%, while the one (1) ride express cash fare would increase by 9.1%. The variance between these two fares is 5.2 percentage points (14.3% - 9.1% = 5.2 percentage points). Valley Metro has adopted a Title VI fare policy specifying that the variance between fares charged for local and express transit services can be no greater than 4 percentage points. In the case of this example, a difference of 5.2 percentage points would be above the 4 percentage point threshold, and therefore the one (1) ride cash fare for express service would either have to be raised, or the one (1) ride cash fare for local service would need to be lowered. This process helps assure equity in the pricing of transit fares to ensure that the burden of operating costs is shared more equitably across modes and services.

Using the ridership profile and the assessment of changes between the existing and proposed transit fares, the Title VI Coordinator will consider the financial impact of the proposed fare adjustment by dollar impact and percent. If a new fare media is proposed, the affordability and availability of the media must be evaluated for affected populations compared to the overall transit system ridership. The following information may be obtained and reported (as the analyst sees fit) from available data to help illustrate potential impacts with changes in fares or fare media:

- Overall transit ridership compared to ridership by race and income
- Method of payment used by different population groups
- Average boardings by fare media by population group and mode
- Frequency of transit use by population group and mode
- Average fare per boarding by fare category and fare media shown by race and income
- Location of off-board fare media outlets

Based on the current ridership profile of existing local and express route riders, over 50% of local riders are minorities, and over 45% are low-income. By comparison, 29%

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of express bus riders are minority, and only 10% are low-income. Referring to the example given above, if local riders experience a fare increase of more than 5 percentage points above express riders, this would result in both a disparate and disproportionate impact to local riders, who are predominantly minority and low-income as compared to express riders.

As noted, it will also be important for the Title VI Coordinator to assess the distribution of off-board fare media outlets across the region. This assessment may be accomplished through a measure of density. Specifically, using the economic data retrieved from the decennial Census or ACS, a Geographic Information Systems (GIS) shapefile of minority and/or low-income populations may be made to illustrate congregations of minority and low-income populations as compared to non-minority and non-low-income populations. Overlaying this shapefile with a shapefile displaying the off-board fare outlets will allow the Title VI Coordinator to visualize the distribution of off-board fare outlets in predominantly minority and low-income areas relative to non-minority and non-low-income areas. Further, a density test may be conducted to determine the density of off-board fare outlets in locations by different user groups. This will allow Valley Metro to determine where investments in off-board fare vending locations must be made to ensure equal access to off-board fares versus on-board fares.

The complete adopted fare equity policy is provided in Appendix B.

Step 4: Determination of Findings, Reporting, and Mitigation

The information gathered and analyzed will provide the basis to determine if discriminatory impacts on minority and/or low-income populations result from the proposed fare adjustment(s). The determination will be consistent with the adopted Valley Metro policy. The conclusions will be considered for each affected population group defined by fare media, fare category, and mode of transit.

Following the analysis and determination of whether proposed fare adjustments will have positive or negative effects to minority and/or low-income populations, the Title VI Coordinator will prepare a concise memorandum or report of the analysis findings. The findings will describe the process and data sources used to evaluate equity implications, results of the analysis, and make recommendations on any mitigation measures that may be appropriate to resolve equity issues.

If a disparate or disproportionate impact is determined, Valley Metro will assess appropriate mitigation measures to avoid, minimize, or eliminate the impact. As noted above, if the percentage point variance between fare categories for local and express

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services is greater than four (4) percentage points, this would result in a disparate and/or disproportionate impact based on user group (minority and/or low-income). Proposed fares for express routes may be raised, or proposed fares for local routes may be lowered to help ensure equity.

It is important to consider the fare level for each mode that would be needed to reach Valley Metro's revenue targets given the estimated ridership loss if fares are increased. Traditional fare elasticity models indicate that increases in transit fares result in decreases in total use. However, given the existing and anticipated future ridership characteristics for the greater Phoenix metropolitan region, it is likely that ridership losses will be negligible, and over time ridership levels will return or exceed the level of ridership prior to implementing a new fare increase. However, it will be important for the Title VI Coordinator to work with the finance personnel to determine an appropriate fare structure to ensure adequate farebox recovery to cover operating costs.

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Appendix A: Valley Metro Adopted Service Change Equity Policy

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MAJOR SERVICE CHANGE & SERVICE EQUITY POLICY

Purpose of the Policy

The purpose of the Major Service Change and Service Equity Policy is to define thresholds for determining major service changes and whether potential changes to existing transit services will have a disparate impact based on race, color, or national origin, or whether potential service changes will have a disproportionately high or adverse impact on minority and/or low-income populations.

Basis for Policy Standards

Federal law requires the City of Phoenix and Valley Metro to evaluate changes to transit services, as outlined in FTA Circular 4702.1B, effective October 1, 2012. In order to comply with 49 CFR Section 21.5(b)(a), 49 CFR Section 21.5 (b)(7) and Appendix C to 49 CFR part 21, recipients shall "evaluate significant system-wide service and fare changes and proposed improvements at the planning and programming stages to determine whether those changes have a discriminatory impact. For service changes, this requirement applies to 'major service changes' only. The recipient should have established guidelines or threshold for what it considers a 'major' change to be."

Major Service Change Policy

A. Major Service Change

The following is considered a major service change (unless otherwise noted under Exemptions), and will be evaluated in accordance with the regulatory requirements set forth in FTA Circular 4702.1B:

1. **Route-Level Service Reduction or Elimination**

   - Reducing an existing route by more than 25% of weekday route revenue miles[1], or

[1] A change of 25% in weekly route revenue miles and/or route directional miles is the current City of Phoenix threshold for determining whether a potential transit service change qualifies as a major service change (or "substantial" service change) according to the City of Phoenix resolution (1990). This percentage is generally an industry-wide percentage threshold used by peer transit systems throughout the United States. The City of Phoenix resolution also specifies that a public comment period will be initiated when a change in transit service of 25% or more is determined.

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- Reducing an existing route by more than 25% of Saturday route revenue miles[1], or
- Reducing an existing route by more than 25% of Sunday route revenue miles[1], or
- Reducing the number of route directional miles more than 25%[1], or
- A change in a route alignment resulting in a 25% or greater variance from the existing route alignment[1], or
- In situations where service would be reduced or eliminated in jurisdictions where minority and/or low-income populations exceed the transit system service area average.

2. Route-Level Expansion or Addition of a New Route

- Adding a new route, or
- Expansion of an existing route that increases weekday route revenue miles by more than 25%[1], or
- Expansion of an existing route that increases Saturday route revenue miles by more than 25%[1], or
- Expansion of an existing route that increases Sunday route revenue miles by more than 25%[1], or
- Expanding the number of route directional miles more than 25%[1], or
- A change in a route alignment resulting in a 25%[1] or greater variance from the existing route alignment.

B. <u>Minority Disparate Impact Policy (Service Equity Analysis)</u>

When conducting a service change equity analysis, the following thresholds will be used to determine when a service change would have a disparate impact on minority populations:

1. Route-Level Service Reduction or Elimination

- Service Level and Service Area Reduction:

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- If the percentage of minority passengers[2] on an affected route is greater than the transit system's minority ridership (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus).[3]

2. Route-Level Expansion or Addition of a New Route

- Service Level Expansion or Service Area Expansion (includes addition of new routes):
  - If a service level expansion or service area expansion is considered that coincides with a reduction in transit service on the same route or other routes, and the route(s) considered for service expansion predominantly serve non-minority and/or non-low-income geographic areas while the route(s) considered for reduction predominantly serve minority and/or low-income geographic areas, then a disproportionate burden may be determined. The determination of a disproportionate burden will be based on meeting both of the following criteria:
    - If the percentage of minority passengers[2] on an affected route considered for service expansion is less than the transit system's minority ridership percentage (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus),[3] **AND**
    - If the percentage of minority passengers[2] on an affected route considered for service reduction is greater than the transit system's minority ridership percentage (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus).[3]

C. <u>Low-Income Disproportionate Burden Policy (Service Equity Analysis)</u>

When conducting a service change equity analysis, the following thresholds will be used to determine when a service change would have a disproportionate burden on low-income populations:

[2] The determination of the transit system and an affected route's minority and/or low-income population will be derived from the most recently completed, statistically valid regional on-board origin and destination survey.

[3] Local routes include local fixed-route bus, light rail, LINK bus, local limited stop bus. Express routes include express bus and RAPID bus. Circulator routes will be evaluated similarly to local routes for fare changes and major services changes, but will be considered separately from local and express services when considered in the context of a region- or system-wide Title VI analysis. Circulator bus services are provided by the municipalities they serve and not the regional transit agency.

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1. **Route-Level Service Reduction or Elimination**

   - If the percentage of low-income passengers[2] on an affected route is greater than the transit system's low-income ridership (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus).[3]

2. **Route-Level Expansion or Addition of a New Route**

   - Service Level Expansion or Service Area Expansion (includes addition of new routes):

     - If a service level expansion or service area expansion is considered that coincides with a reduction in transit service on the same route or other routes, and the route(s) considered for service expansion predominantly serve non-minority and/or non-low-income geographic areas while the route(s) considered for reduction predominantly serve minority and/or low-income geographic areas, then a disproportionate burden may be determined. The determination of a disproportionate burden will be based on meeting both of the following criteria:

       - If the percentage of low-income passengers[2] on an affected route considered for service expansion is less than the transit system's low-income ridership percentage (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus),[3] **AND**

       - If the percentage of low-income passengers[2] on an affected route considered for service reduction is greater than the transit system's low-income ridership percentage (within the appropriate dataset's margin of error) by transit classification (local, express, neighborhood circulators, and rural bus).[3]

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Equity Analysis Data Sources

Category	Action	Sub Action	Evaluation Method
Fare	Adjustment	N/A	O/D[a] profile data of affected fare category and/or Census Data
Service Span	Reduction	N/A	O/D[a] profile data of affected route
	Expansion	N/A	
Service Headway	Reduction	N/A	O/D[a] profile data of affected route
	Expansion	N/A	
Route Length	Reduction	N/A	O/D[a] Data
	Expansion	N/A	Census Data
Route Alignment	Reduced Alignment	N/A	O/D[a] Data
	Expanded Alignment	N/A	Census Data
	Modified Alignment	Eliminated Segment(s)	O/D[a] Data
		Segment(s) to New Areas	Census Data
New Route	New Route	N/A	Census Data

[a] Origin/Destination Survey Data

Exemptions

The major service change thresholds exclude any changes to service that are caused by the following:

- Discontinuance of Temporary or Demonstration Services – The discontinuance of a temporary transit service or demonstration service that has been in effect for less than 180 days.
- Headway Adjustments – Headways for transit routes may be adjusted up to 5 minutes during the peak hour periods, and 15 minutes during non-peak hour periods.
- New Transit Service "Break-In" Period – An adjustment to service frequencies and/or span of service for new transit routes that have been in revenue service for less than 180 days.

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- Other Service Providers or Agencies – Actions of other service providers or public agencies providing/administering transit services that are not the responsibility of Valley Metro.

- Natural or Catastrophic Disasters – Forces of nature such as earthquakes, wildfires, or other natural disasters, or human-caused catastrophic disasters that may force the suspension of scheduled transit service for public safety or technical reasons.

- Auxiliary Transportation Infrastructure Failures – Failures of auxiliary transportation infrastructure such as vehicular bridges, highway bridge overpasses, tunnels, or elevated highways that force the suspension transit service.

- Overlapping Services – A reduction in revenue miles on one line that is offset by an increase in revenue miles on the overlapping section of an alternative transit route (an overlapping section is where two or more bus routes or rail lines share the same alignment, stops, or stations for a short distance).

- Seasonal Service and Special Events – Changes to bus service levels on routes which occur because of seasonal ridership changes and event activities served by dedicated temporary bus routes or increased service frequencies.

- Temporary Route Detours – A short-term change to a route caused by road construction, routine road maintenance, road closures, emergency road conditions, fiscal crisis, civil demonstrations, or any uncontrollable circumstance.

Public Participatory Procedures

For all proposed major service changes, City of Phoenix and/or Valley Metro will hold at least one public hearing, with a minimum of two public notices prior to the hearing in order to receive public comments on the potential service changes. The first meeting notice will occur at least 30 days prior to the scheduled hearing date, with the second notice being made at least 10 days prior to the scheduled hearing date. Public materials will be produced in English and Spanish (the metropolitan region's two primary languages), or in other languages upon request, in order to ensure Limited English Proficient (LEP) populations within the transit service area are informed of the proposed service changes and can participate in community discussions. Valley Metro and/or the City of Phoenix will conduct a service equity analysis for the Valley Metro Board of

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Directors, the City of Phoenix City Council, and the public's consideration prior to any public hearings associated with the proposed service changes.

Definitions

Designated Recipient – The City of Phoenix is the designated recipient for federal funds contributing to transit system capital programs and operations in the greater Phoenix metropolitan region.

Disparate Impact – A facially neutral policy or practice that has a disproportionately excluding or adverse effect on the minority riders or population of the service area.

Disparate Treatment – An action that results in a circumstance in which minority riders or populations are treated differently than others because of their race, color, national origin and/or income status.

Disproportionate Impact – A facially neutral policy or practice that has a disproportionately excluding or adverse effect on the low-income riders or population of the service area.

Express Transit Service – Includes Valley Metro designated express bus and RAPID bus services.

High-Capacity Transit (HCT) – A transit facility or service that operates at a consistent, high frequency of service.

Local Transit Service – Includes Light Rail Transit (LRT), and local fixed-route bus, local limited stop bus, LINK bus routes, and circulator/shuttle bus services.

Low-income Populations & Areas – Low-income populations are those persons with an income of 80 percent or less of the national per capita income. "Low-income Areas" are residential land use areas within census tracts where the average per capita income is 80 percent or less of the national per capita income.

Minority Populations & Areas – Minority populations include those persons who self-identify themselves as being one or more of the following ethnic groups: American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian and Other Pacific Islander, as defined in the FTA Title VI Circular. "Minority Areas" are residential land use areas within Census tracts where the percentage of minority persons is higher than the Valley Metro service area average.

Route-Level – Refers to the geographic level of analysis at the route alignment level by which the performance of a transit route is measured for equity.

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Route-Service Area – A three-quarter mile radial buffer on either side of a transit route's alignment. A three-quarter mile radial buffer is used to ensure compliance with the American's with Disabilities Act guidelines.

Service Level – Refers to the span of service (hours of operation), days of operation, trips, and headways (service frequencies) for a transit route or the regional transit system.

Service Area – According to 49 CFR 604.3, geographic service area means "the entire area in which a recipient is authorized to provide public transportation service under appropriate local, state, and Federal law."

Service Span – The span of hours over which service is operated (e.g., 6 a.m. to 10 p.m.). The service span may vary by weekday, Saturday, or Sunday.

Sub-recipient – Valley Metro is a designated sub-recipient of federal funding for capital projects and service operations. Funding is passed onto Valley Metro from the designated recipient, the City of Phoenix.

System-wide – Refers to the geographic level of analysis by which the performance of the entire transit system is measured for equity.

Transit System – A coordinated urban network of scheduled public passenger modes including fixed-route local and express buses, light rail transit, bus rapid transit, and circulator bus services that provide mobility for people from one place to another.

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Appendix B: Valley Metro Adopted Fare Equity Policy

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PROPOSED FARE EQUITY POLICY

Purpose of the Policy

The purpose of the Fare Equity Policy is to define a threshold for determining whether potential changes to existing transit fares will have a discriminatory impact based on race, color, or national origin, or whether a potential fare adjustment will have a disproportionately high or adverse impact on minority and/or low-income populations.

Basis for Policy Standards

Periodically, the City of Phoenix and Valley Metro make adjustments to transit fares in order to generate revenues to help sustain transit service operations. Federal law requires the City of Phoenix and Valley Metro to prepare and submit fare equity analyses for all potential transit fare adjustments, as outlined in Federal Transit Administration (FTA) Circular 4702.1B, effective October 1, 2012.

Proposed Policy

The following are proposed City of Phoenix and Valley Metro policies for determining if a fare adjustment will result in a minority disparate impact or low-income disproportionate impact.

A. <u>Minority Disparate Impact Policy (Fare Equity Analysis)</u>

If a planned transit fare adjustment results in minority populations bearing a fare rate change of greater than 4percentage points as compared to non-minority populations, the resulting effect will be considered a minority disparate impact.

B. <u>Low-Income Disproportionate Burden Policy (Fare Equity Analysis)</u>

If a planned transit fare adjustment results in low-income populations bearing a fare rate change of greater than 4 percentage points as compared to non-low-income populations, the resulting effect will be considered a low-income disproportionate burden.

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Equity Analysis Data Sources

Category	Action	Sub Action	Evaluation Method
Fare	Adjustment	N/A	O/D[a] profile data of affected fare category and/or Census Data
Service Span	Reduction	N/A	O/D[a] profile data of affected route
	Expansion	N/A	
Service Headway	Reduction	N/A	O/D[a] profile data of affected route
	Expansion	N/A	
Route Length	Reduction	N/A	O/D[a] Data
	Expansion	N/A	Census Data
Route Alignment	Reduced Alignment	N/A	O/D[a] Data
	Expanded Alignment	N/A	Census Data
	Modified Alignment	Eliminated Segment(s)	O/D[a] Data
		Segment(s) to New Areas	Census Data
New Route	New Route	N/A	Census Data

[a] Origin/Destination Survey Data

Public Participatory Procedures

For all proposed fare changes, City of Phoenix and/or Valley Metro will hold at least one public hearing, with a minimum of two public notices prior to the hearing in order to receive public comments on the proposed fare changes. The first meeting notice will occur at least 30 days prior to the scheduled hearing date, with the second notice being made at least 10 days prior to the scheduled hearing date. Public materials will be produced in English and Spanish (the metropolitan region's two primary languages), or in other languages upon request, in order to ensure Limited English Proficient (LEP) populations within the transit service area are informed of the proposed service changes and can participate in community discussions. Valley Metro and/or the City of Phoenix will conduct a fare equity analysis for the Valley Metro Board of Directors, the City of Phoenix City Council, and the public's consideration prior to any public hearings associated with the proposed fare changes.

Definitions

Designated Recipient – The City of Phoenix is the designated recipient for federal funds contributing to transit system capital programs and operations in the greater Phoenix metropolitan region.

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Disparate Impact – A facially neutral policy or practice that has a disproportionately excluding or adverse effect on the minority riders or population of the service area.

Disparate Treatment – An action that results in a circumstance in which minority riders or populations are treated differently than others because of their race, color, national origin and/or income status.

Disproportionate Impact – A facially neutral policy or practice that has a disproportionately excluding or adverse effect on the low-income riders or population of the service area.

Express Transit Service – Includes Valley Metro designated express bus and RAPID bus services.

High-Capacity Transit (HCT) – A transit facility or service that operates at a consistent, high frequency of service.

Local Transit Service – Includes Light Rail Transit (LRT), and local fixed-route bus, local limited stop bus, LINK bus routes, and circulator/shuttle bus services.

Low-income Populations & Areas – Low-income populations are those persons with an income of 80 percent or less of the national per capita income. “Low-income Areas” are residential land use areas within census tracts where the average per capita income is 80 percent or less of the national per capita income.

Minority Populations & Areas – Minority populations include those persons who self-identify themselves as being one or more of the following ethnic groups: American Indian and Alaska Native, Asian, Black or African American, Hispanic or Latino, Native Hawaiian and Other Pacific Islander, as defined in the FTA Title VI Circular. “Minority Areas” are residential land use areas within Census tracts where the percentage of minority persons is higher than the Valley Metro service area average.

Route-Level – Refers to the geographic level of analysis at the route alignment level by which the performance of a transit route is measured for equity.

Route-Service Area – A three-quarter mile radial buffer on either side of a transit route’s alignment. A three-quarter mile radial buffer is used to ensure compliance with the American’s with Disabilities Act guidelines.

Service Level – Refers to the span of service (hours of operation), days of operation, trips, and headways (service frequencies) for a transit route or the regional transit system.

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Service Area – According to 49 CFR 604.3, geographic service area means "the entire area in which a recipient is authorized to provide public transportation service under appropriate local, state, and Federal law."

Service Span – The span of hours over which service is operated (e.g., 6 a.m. to 10 p.m.). The service span may vary by weekday, Saturday, or Sunday.

Sub-recipient – Valley Metro is a designated sub-recipient of federal funding for capital projects and service operations. Funding is passed onto Valley Metro from the designated recipient, the City of Phoenix.

System-wide – Refers to the geographic level of analysis by which the performance of the entire transit system is measured for equity.

Transit System – A coordinated urban network of public passenger modes including fixed-route local and express buses, light rail transit, bus rapid transit, and circulator bus services that provide mobility for people from one place to another.

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Appendix C: Example Title VI Memorandum

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Valley Metro

Title VI Assessment of Proposed Service Changes for July 2013

May 2013

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1.0 Introduction

This memorandum defines the proposed general service modifications considered for several Valley Metro system routes, and considers whether the proposed service modifications qualify as "Major Service Changes" in accordance with Valley Metro's adopted service equity policies and Federal Title VI regulations. The memorandum includes an evaluation of potential effects to minority and/or low-income populations using or residing near the routes considered for service modifications. Maps displaying the percentages of minority and low-income populations surrounding each bus route considered for service modifications are provided at the back of this memorandum.

2.0 Summary of Service Modifications

Table 1 outlines the bus routes proposed for service changes, the percentage change, and whether the change qualifies as a Major Service Change. It is important to note that several routes included multiple service modifications, and the proposed modifications were therefore considered independently. Additional detail on the proposed service modifications is provided below.

Table 1. Summary of Service Modifications and Major Service Changes

Route	Percentage Change	Major Service Change	Disparate/Disproportionate Impact Determination
Route 56 (Route Reduction)	37.0%	Yes	Potential disparate impact; Offset by modifications to Route 108
Route 56 (Modified Alignment)	4.4%	No	None
Route 108 (Modified Alignment)	20.0%	No	None
Route 108 (Headway Expansion)	65.8%	Yes	None
Route 156 (Modified Alignment)	2.6%	No	None
Route 511 (Modified Alignment)	1.1%	No	None
Route 571 (Headway Expansion)	33.0%	Yes	None

3.0 General Service Modifications

The proposed general service modifications to the following routes are defined below. The service modifications considered include elimination of service along specific streets, extensions of routes to serve new geographic areas, and enhancements to service frequencies.

- Route 56 (Priest Drive) – Route Length Reduction/Modified Alignment (Segments to New Areas) – Two service changes are proposed for Route 56. The first would be the elimination of service between Priest Drive/Elliot Road and 48th Street/Chandler Boulevard (a reduction of approximately 4.11 route miles). The second change would be the extension of service from Priest Drive/Elliot Road to 48th Street/Ray

Road (via Priest Drive), and extension of service to McDowell Road/68th Street. These service changes will be evaluated separately.

- Route 108 (Elliot Road) – Route Length Expansion/Service Headway Expansion – Two service changes are proposed for Route 108. The route's western end is proposed to be extended by approximately 5.25 miles to 48th Street/Frye Road, with designated peak hour trips to the 40th Street/Pecos Road Park-and-Ride. In addition to the extension of the route, the cities of Mesa, Gilbert, and Chandler are planning to increase service operations along Route 108 to match the operating characteristics of the service in Tempe. These service changes will be evaluated separately.
- Route 156 (Chandler Boulevard) – Route Length Expansion – The western end of the route is proposed to be extended by approximately 0.5 miles to the intersection of 48th Street/Chandler Boulevard.
- Route 511 (Tempe/Scottsdale Airpark Express) – Modified Alignment – This express route is modified to end at the McClintock/Apache Boulevard Park-and-Ride to connect passengers with local bus and light rail services.
- Route 571 (Grand Avenue Express) – Service Headway Expansion – Two additional service runs are proposed, one morning and one afternoon peak period trip, increasing the total number of trips from six to eight.

4.0 Determination of Major Service Changes

In accordance with Valley Metro's policy for determining whether the proposed service modifications to the aforementioned routes qualify as Major Service Changes, each of the route modifications were evaluated independently. In order to be considered a Major Service Change, the route length, alignment, or the route's operating characteristics must exceed a cumulative change threshold of 25%.

- Route 56 (Priest Drive) – Route Length Reduction – The proposed reduction in route length represents a loss of 4.11 route miles, amounting to a 37% reduction of the route's current total length. This percentage change is above the 25% threshold. Additionally, the elimination of service between the intersections of Priest Drive/Elliot Road and 48th Street/Chandler Boulevard would require passengers to transfer to a different route to connect with destinations currently served between these intersections along Elliot Road and 48th Street. No frequency or service span changes are planned. This service modification is therefore considered a Major Service Change.
- Route 56 (Priest Drive) – Modified Alignment (Segments to New Areas) – While a portion (described above) of Route 56 would be eliminated, the northern and southern ends of the route would be extended to serve new areas. The northern terminus would be extended from Van Buren Street/Priest Drive to McDowell Road/68th Street (approximately 1.9 miles), and the southern terminus at Priest Drive/Elliot Road would be extended to 48th Street/Ray Road (via Priest Drive) (approximately 3 miles). No frequency or service span changes are planned. These

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route extensions amount to a 4.4% gain in route length (when compared to the existing route length). Cumulatively, when considering the eliminated segment and the new areas served by extension of the Route 56, the change amounts to a difference of -10.1% in total route length (or a loss of only 1.4 miles in route length) when compared to the existing route alignment and length. The modified alignment of Route 56 with service to new areas is not a Major Service Change.

- Route 108 (Elliot Road) – Route Length Expansion – The proposed extension of Route 108 would result in a net gain of 4.7 route miles, amounting to a 20% increase in total route length above the route's current alignment. This extension would operate along the existing alignment of the Route 56 proposed for elimination, helping to offset the loss of service along 48th Street by the restructuring of Route 56. While passengers from the Route 56 would have to transfer to the Route 108 at Priest Drive/Elliot Road (or at 48th Street/Ray Road, assuming the Route 56 alignment is modified), they would still be able to reach destinations along the Elliot Road and 48th Street corridors west of Priest Drive currently served by the Route 56. The proposed service modification is not a Major Service Change.
- Route 108 (Elliot Road) – Service Headway Expansion – In addition to the planned extension of the route, changes are also planned for the service frequency of Route 108. Currently the route makes 13 trips through the cities of Tempe, Chandler, Mesa, and the Town of Gilbert. The proposed frequency changes would result in the service operating in Mesa, Chandler, and Gilbert matching the service in Tempe, where the route currently operates at 30-minute headways (unlike Mesa, Chandler, and Gilbert, where the route operates at 60 minute headways currently) making 38 total trips. This change amounts to adding 25 additional daily trips. This amounts to an increase of 259,055.73 additional annual revenue miles. In total, the additional 25 trips amounts to an increase in service of approximately 65.8%. Therefore, the proposed service modification is a Major Service Change.
- Route 156 (Chandler Boulevard) – Route Length Expansion – The proposed route modification would extend the western end point of Route 156 from 54th Street to 48th Street. This amounts to a route extension of approximately 0.5 miles. No frequency or service span changes are planned. This service modification amounts to a change of approximately 2.6% increase in route length. Therefore, the proposed service modification is not considered a Major Service Change.
- Route 511 (Tempe/Scottsdale Airpark Express) – Modified Alignment – The route is proposed to be shorted by 1.1%, simplifying the turnaround at the Scottsdale Airpark to link with a future circulator service.
- Route 571 (Grand Avenue Express) – Service Headway Expansion – This route currently makes three morning and three afternoon peak period trips. The addition of two full service runs (one during the morning and one during the afternoon peak periods) would increase the total number of services runs from six to eight. Cumulatively, the addition of two trips along a route that currently makes six total trips (morning and afternoon) would result in a 33% increase in the total number of trips. This service modification would be a major service change.

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Table 2 summarizes the service modifications deemed to qualify as Major Service Changes.

Table 2. Summary of Service Modifications and Major Service Changes

Route	Percentage Change	Major Service Change
Route 56 (Route Reduction)	37.0%	Yes
Route 56 (Modified Alignment)	4.4%	No
Route 108 (Modified Alignment)	20.0%	No
Route 108 (Headway Expansion)	65.8%	Yes
Route 156 (Modified Alignment)	2.6%	No
Route 511 (Modified Alignment)	1.1%	No
Route 571 (Headway Expansion)	33.0%	Yes

5.0 Route Demographic Profile Information

A review of available demographic data was conducted to evaluate the current ridership socioeconomic characteristics of the existing routes, and/or the population and income characteristics of populations residing in areas where new service would be provided. The evaluation was based on Valley Metro's policies for service changes. For service changes affecting route lengths or headways, a review of available origin/destination survey data was conducted. For extensions of routes to new geographic areas where service is currently not provided, 2010 Census data were used to profile the demographic characteristics of the new service area.

- Route 56 (Priest Drive) – Route Length Reduction – According to data from the origin/destination survey, 59.2% of the route's ridership are minority passengers. The data suggest that approximately 29.9% of current passengers are low-income.
- Route 56 (Priest Drive) - Modified Alignment (Segments to New Areas) – Census demographic data suggests that the extensions north and south along Priest Drive to McDowell Road/68th Street and 48th Street/Ray Road would serve areas below the Valley Metro service area threshold for being considered minority or low-income areas.
- Route 108 (Elliot Road) – Route Length Expansion – According to Census demographic data, the proposed extension of Route 108 would serve a geographic area along Elliot Road and 48th Street in southeast Phoenix that are below the Valley Metro service area thresholds for being considered minority or low-income areas.
- Route 108 (Elliot Road) – Service Headway Expansion - According to the most recent Transit On-Board Origin/Destination Survey, 57.5% of the Route 108 riders are minorities, and 29.8% are low-income riders, with incomes below $25,000, the threshold used to characterize low-income populations.
- Route 156 (Chandler Boulevard) – Route Length Expansion – According to the Census demographic data, the proposed extension of Route 156 would serve a

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geographic area along Chandler Boulevard that is below the Valley Metro service area thresholds for being considered minority or low-income areas.

- Route 511 (Grand Avenue Express) – Service Headway Expansion – According to the origin/destination survey data, approximately 26.3% of passengers using Route 511 are minorities. Approximately 0.0% of existing passengers self-identified themselves has having incomes below $25,000.
- Route 571 (Grand Avenue Express) – Service Headway Expansion – According to the origin/destination survey data, approximately 29.6% of passengers using Route 571 are minorities. Approximately 10.5% of existing passengers self-identified themselves has having incomes below $25,000.

Table 3 below provides a summary of 2010 decennial Census data representing the minority and impoverished populations residing in census tracts that are directly affected by each of the proposed service modifications. The table is split to show the minority and low-income percentages first along the existing routes, and then along the portions of each route slated to change.

Table 3. Census Demographic Data for Current and Proposed Route Alignments

Current Route Alignment Demographics (Census)	Minority	Low-Income
Route 56	45.6%	16.5%
Route 108	28.0%	7.5%
Route 156	39.7%	8.7%
Route 511	28.7%	15.6%
Route 571	55.7%	23.9%
Service Modification Demographics	**Minority**	**Low-Income**
Route 56 (Route Length Reduction) (O/D Survey[1])	59.1%	29.9%
Route 56 (Modified Alignment) (Census)	38.8%	11.0%
Route 108 (Route Length Expansion) (Census)	35.8%	8.5%
Route 108 (Service Headway Expansion)[2] (O/D Survey[1])	57.5%	29.8%
Route 156 (Route Length Expansion) (Census)	41.4%	7.2%
Route 511 (Modified Alignment) (O/D Survey[1])	26.3%	0.0%
Route 571 (Service Headway Expansion)[2] (O/D Survey[1])	29.6%	10.5%
Valley Metro Service Area (Census)	45.6%	15.8%
Valley Metro System-Wide Percentage (O/D Survey[1])	56.2%	50.6%

[1] The most recent Transit On-Board Origin/Destination Survey was conducted at the 95% confidence level, with a margin of error of +/- 1%. Refer to Appendix B of the O/D Survey.
[2] As service frequency changes, the demographic characteristics of Routes 108 and 571 do not change from their current characteristics.

6.0 Public Outreach

The City of Tempe held two public meetings on February 6th and 9th 2013 to seek input on proposed changes to routes 56 and 108.

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The City of Phoenix held several public meetings on March 12th, 13th, 14th, 18th, and 20th 2013 to seek input on proposed changes to routes 56, 108, 156, and 571. The City of Phoenix also held a public hearing on these proposed changes on April 8, 2013.

Valley Metro will hold a public hearing on May 29, 2013 in the Town of Surprise to discuss the proposed changes to Route 571.

7.0 Conclusions

Of the proposed service modifications outlined above that qualify as "Major Service Changes", only the Route 56 has the potential to result in a disparate and disproportionate impact on minority and low-income populations. Currently, 59.1% of Route 56 riders are minorities, 2.9 percentage points above the Valley Metro system-wide percentage of minority users (56.2%) based on the Transit On-Board Survey (2010-2011). Low-income populations account for 29.9% of the route's ridership, 20.7 percentage points below the Valley Metro system-wide percentage of low-income users (50.6%), based on the Transit On-Board Survey. The elimination and re-alignment of service along portions of the Route 56 would result in the need for current Route 56 passengers to transfer between bus routes to access destinations along Elliot Road and 48th Street. All passengers would still have access to destinations served by the current alignment of Route 56 if the Route 108 is modified to serve 48th Street and the 40th Street/Pecos Road park-and-ride (select peak-period trips only). Therefore, the potential disparate impact to Route 56 is offset by the modification of Route 108 as described above. None of the proposed service changes, regardless of whether they are "Major Service Changes" or not, are anticipated to have a disproportionate impact to low-income populations.

In the case of the frequency enhancements to Route 108 and Route 571, the enhancements to service are anticipated to benefit all communities. Therefore, the proposed change in frequency will not result in a disparate or disproportionate impact to minority or low-income population.

Table 4 summarizes the analysis results by route and the determination of whether a disparate or disproportionate impact would result as an outcome of the changes as proposed. It is important to remember that the service modifications proposed are either changes to the route alignments and/or route lengths, or are service frequency changes. The type of service modification determines the data to be used for analyzing whether the proposed change will result in a disparate or disproportionate impact. Changes to existing route alignments or service frequencies are evaluated using origin/destination survey data, while extensions of bus routes to serve new geographic areas are evaluated using Census data. The minority and low-income percentages shown are based on the type of data used to evaluate the proposed service change for equity implications. Each of the routes has been identified as to whether the proposed service modification would qualify as a "Major Service Change". Because there were multiple changes proposed for both the Route 56 and Route 108, these changes were

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considered separately. The determination of whether an adverse, disparate, or disproportionate impact occurs is based on the following:

1. The proposed service modification qualifies as a Major Service Change. If the service modification is not deemed a "Major Service Change", it is determined that the proposed change would not have an adverse, disparate, or disproportionate impact to any community.
2. The percentage of minority or low-income populations is above the Valley Metro Service Area threshold (shown at the bottom of the table). The percentages shown for minority and low-income populations reflect the population percentages for the portion of the route that is changing, or type of service modification. For example, the minority percentage for the route length reduction proposed for Route 56 reflects the percentage of minorities currently using the route based on the origin/destination survey data.
3. Improvements to service (e.g. extensions of routes to serve new areas or frequency improvements) that provide a benefit to all users do not constitute an adverse, disparate, or disproportionate impact.

Table 4. Summary of Service Modifications and Equity Impact Assessment

Route	Major Service Change	Type of Change	Minority Percentage	Low-Income Percentage	Disparate/Disproportionate Impact Determination
Route 56	Yes	Length Reduction[1]	59.1%	29.9%	Potential disparate impact; Offset by modifications to Route 108
Route 56	No	Modified Alignment[2]	38.8%	11.0%	None
Route 108	No	Length Expansion[2]	35.8%	8.5%	None
Route 108	Yes	Headway Expansion[1]	57.5%	29.8%	None
Route 156	No	Length Expansion[2]	41.4%	7.2%	None
Route 511	No	Modified Alignment[2]	26.3%	0.0%	None
Route 571	Yes	Headway Expansion[1]	29.6%	10.5%	None
Valley Metro Service Area		N/A	45.6%	15.8%	N/A
Valley Metro System-Wide Percentage (O/D Survey)			56.2%	50.6%	

[1] Transit On-Board Origin/Destination Survey Data, 2010-2011
[2] 2010 Census Data, U.S. Census Bureau

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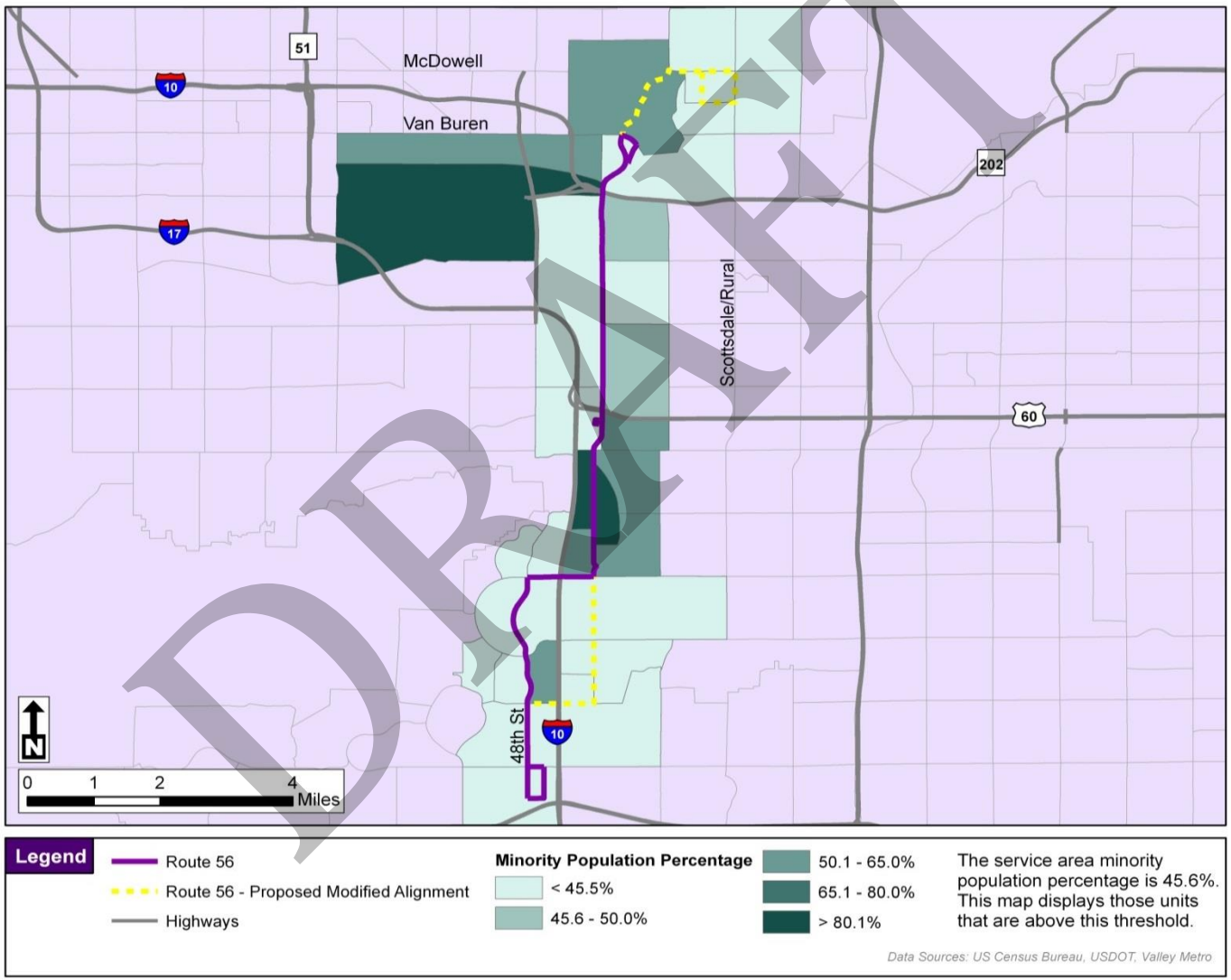
PROPOSED SERVICE CHANGES AND DEMOGRAPHIC MAPS

Route 56 - Proposed Service Modification & Minority Percentage



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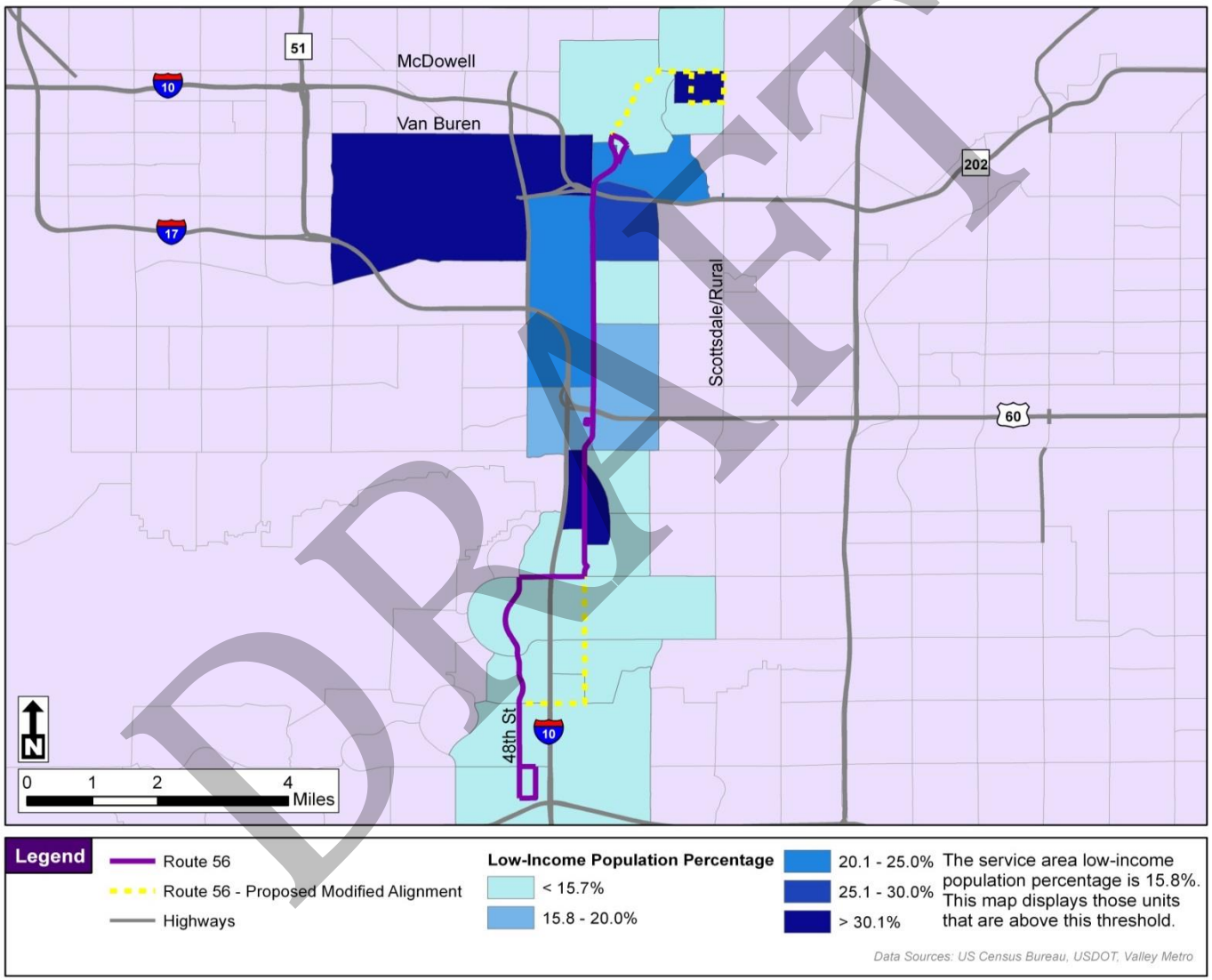
Route 56 - Proposed Service Modification & Low-Income Percentage



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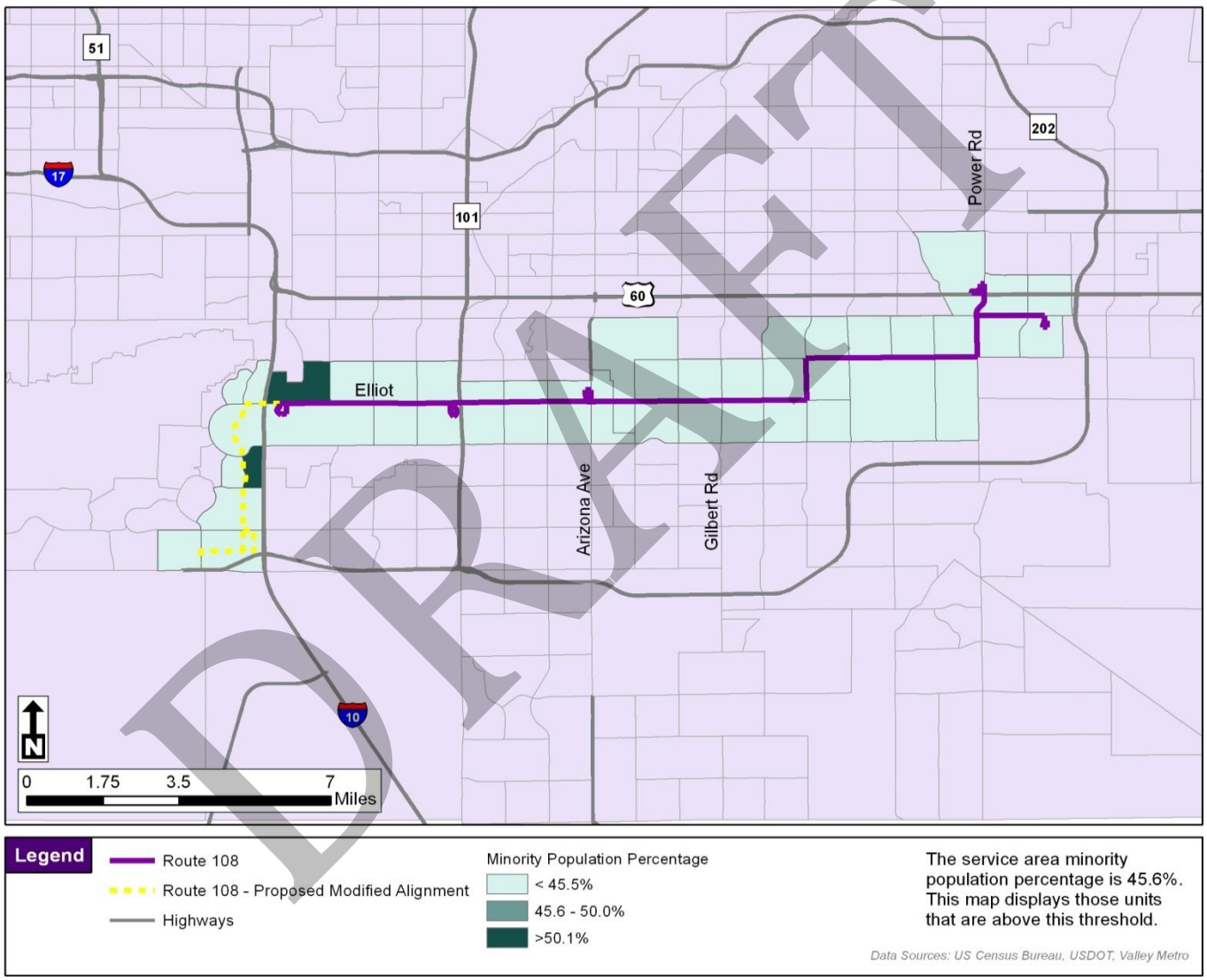
Route 108 - Proposed Service Modification & Minority Percentage



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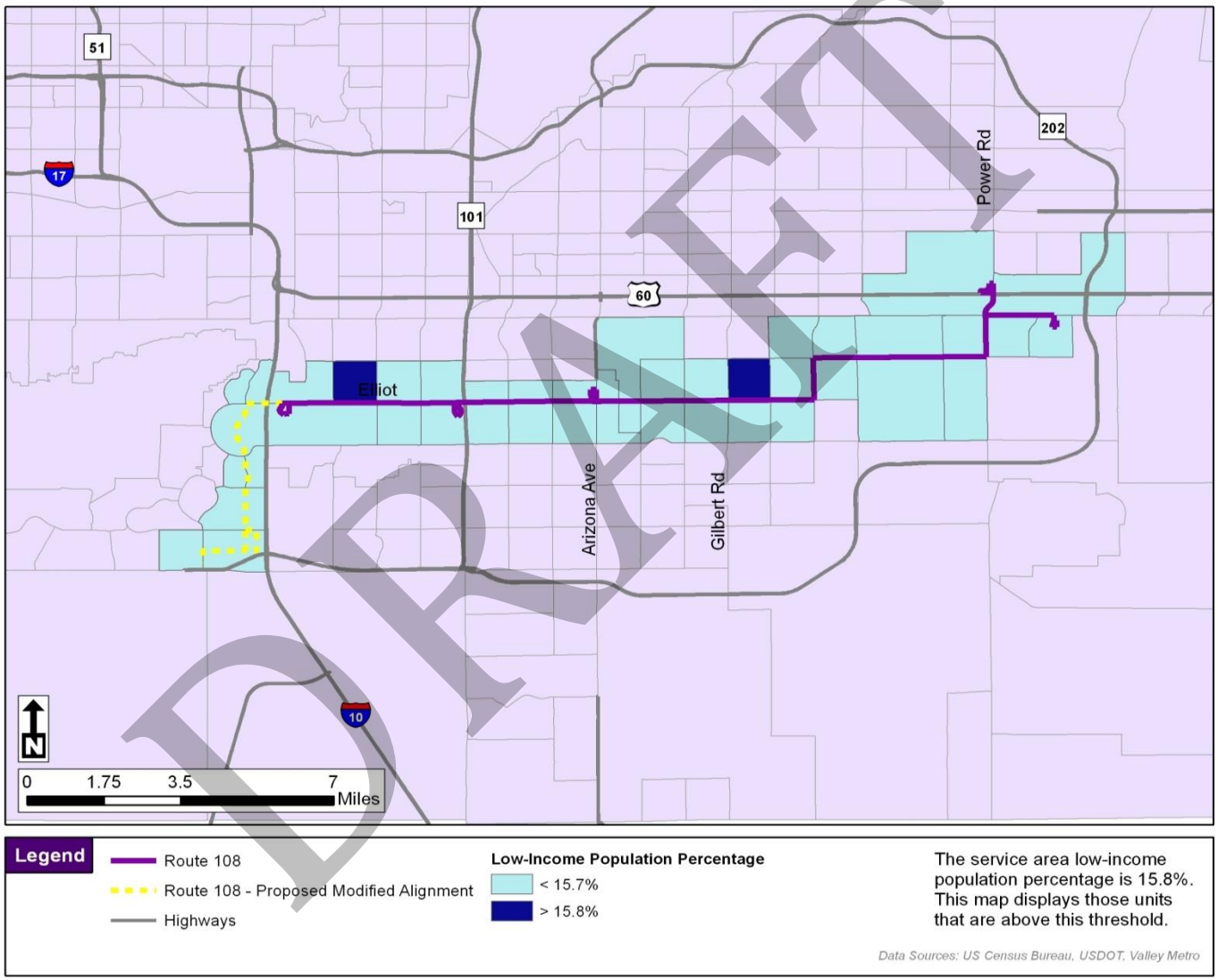
Route 108 - Proposed Service Modification & Low-Income Percentage



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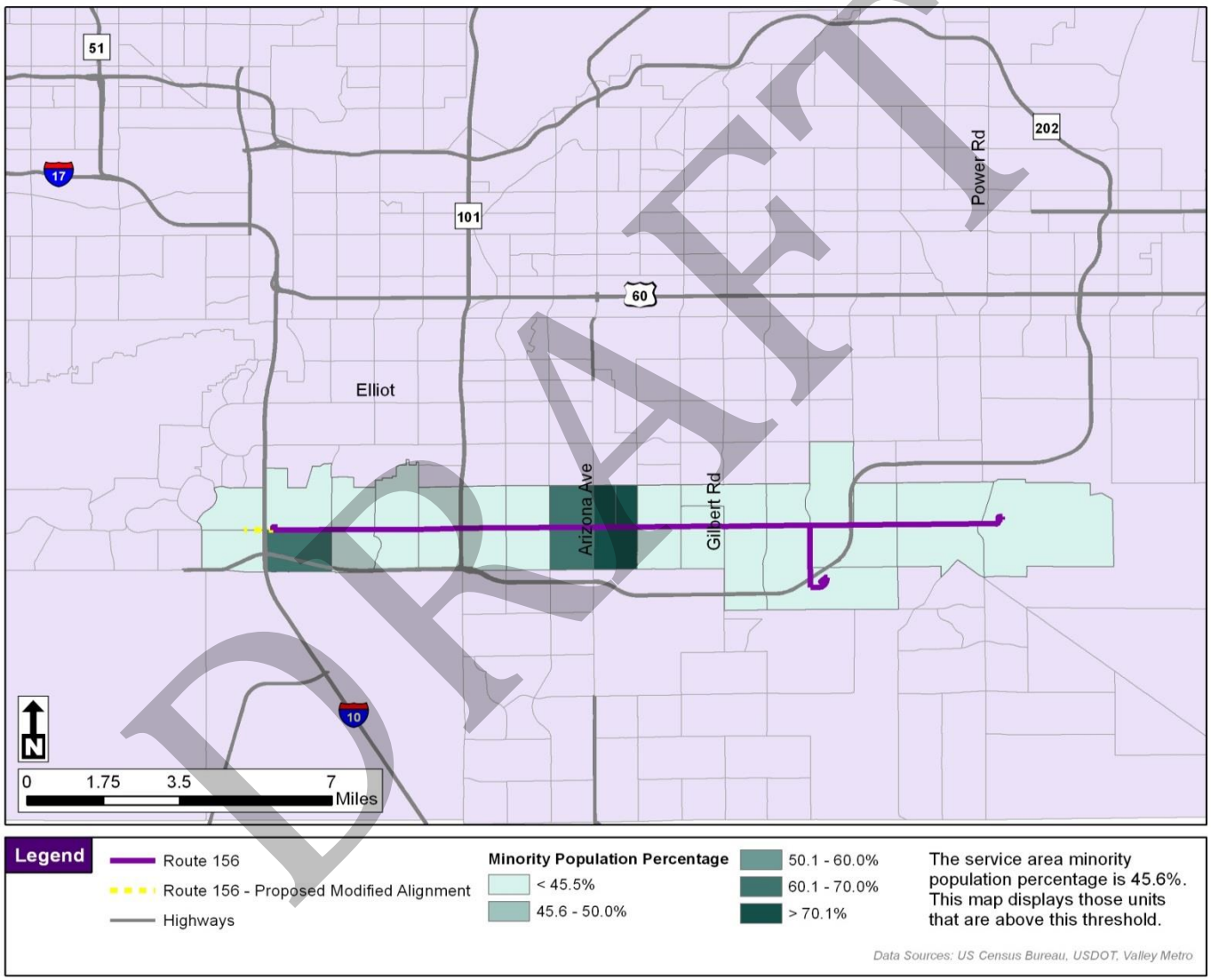
Route 156 - Proposed Service Modification & Minority Percentage



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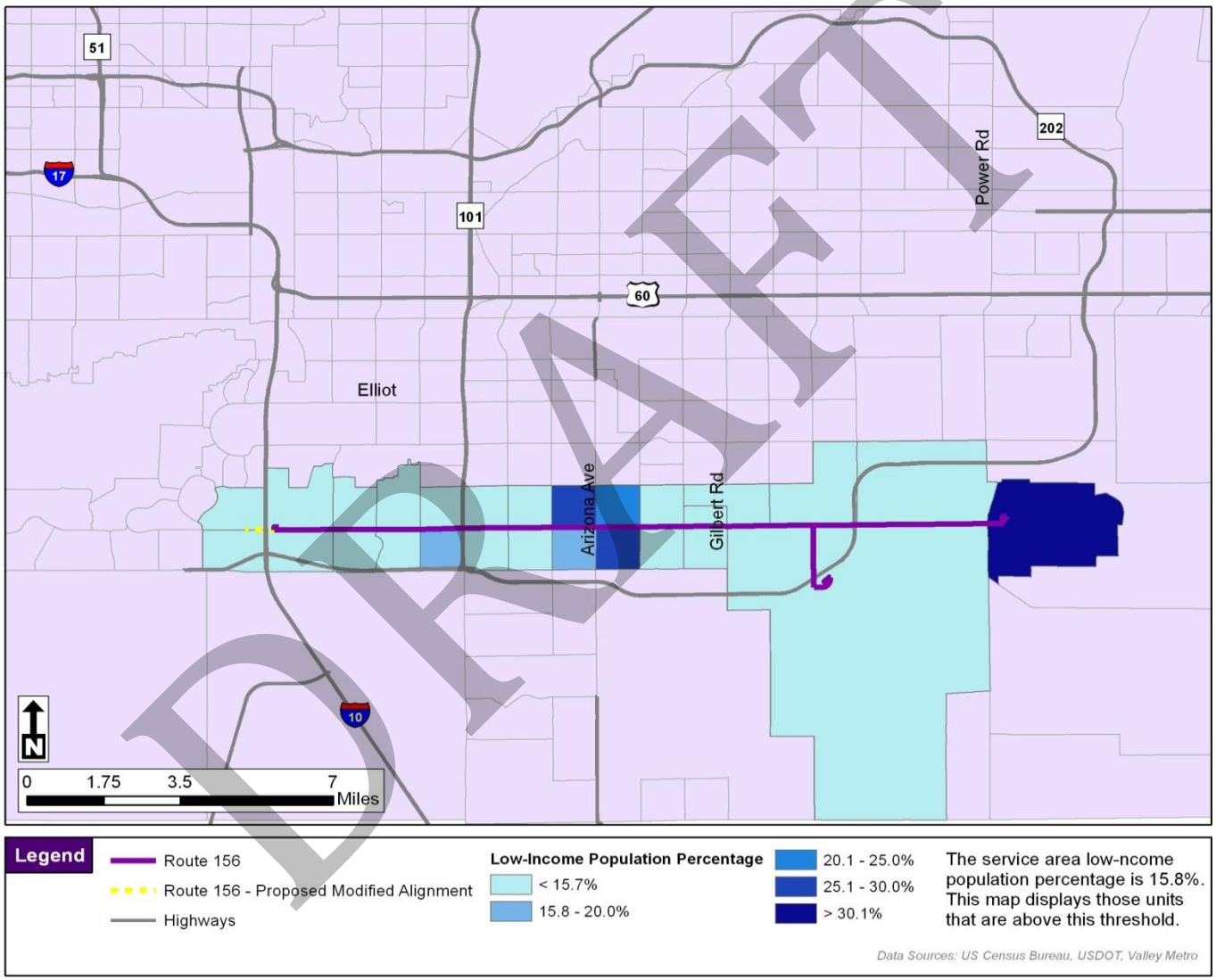
Route 156 - Proposed Service Modification & Low-Income Percentage



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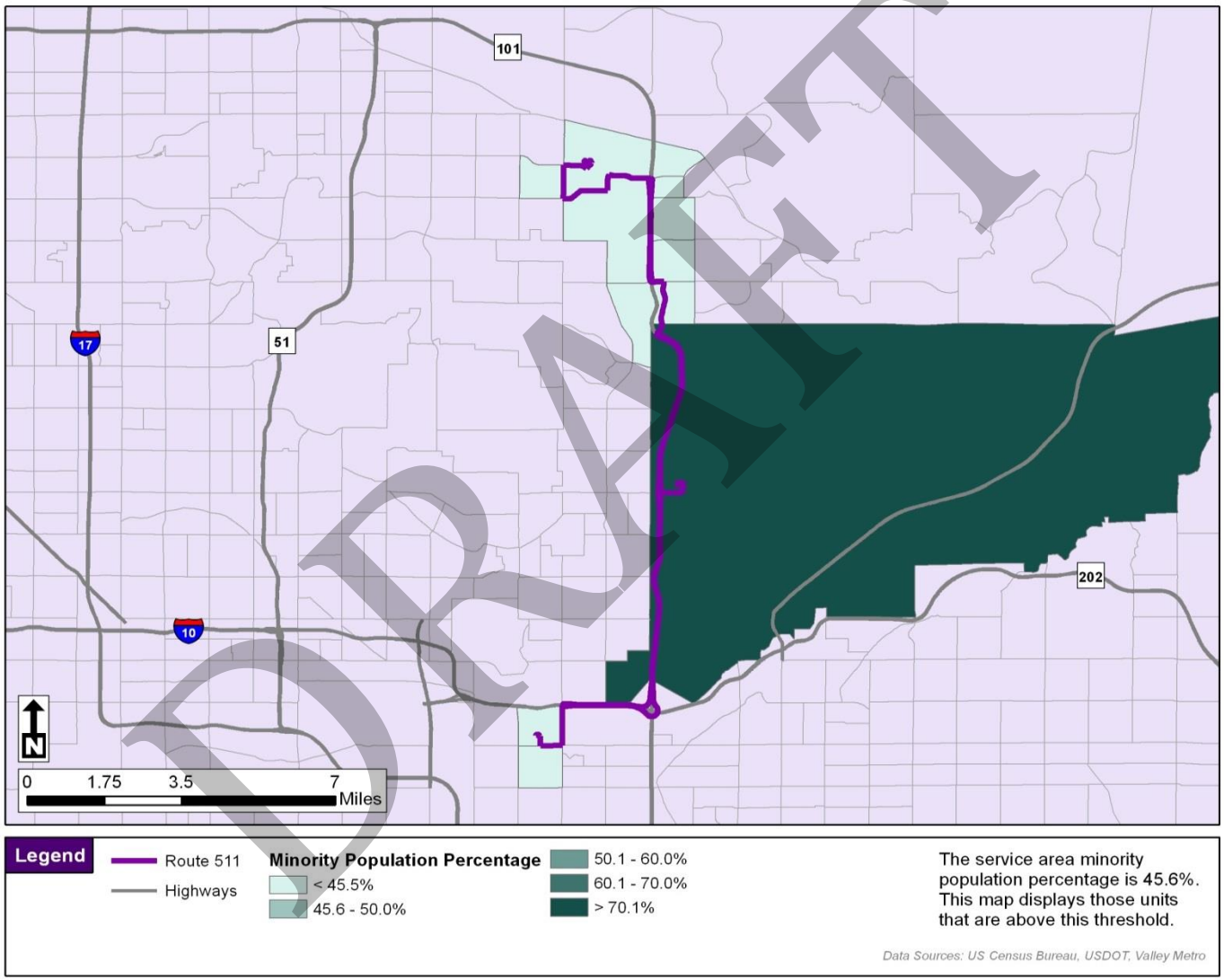
Route 511 - Proposed Service Modification & Minority Percentage



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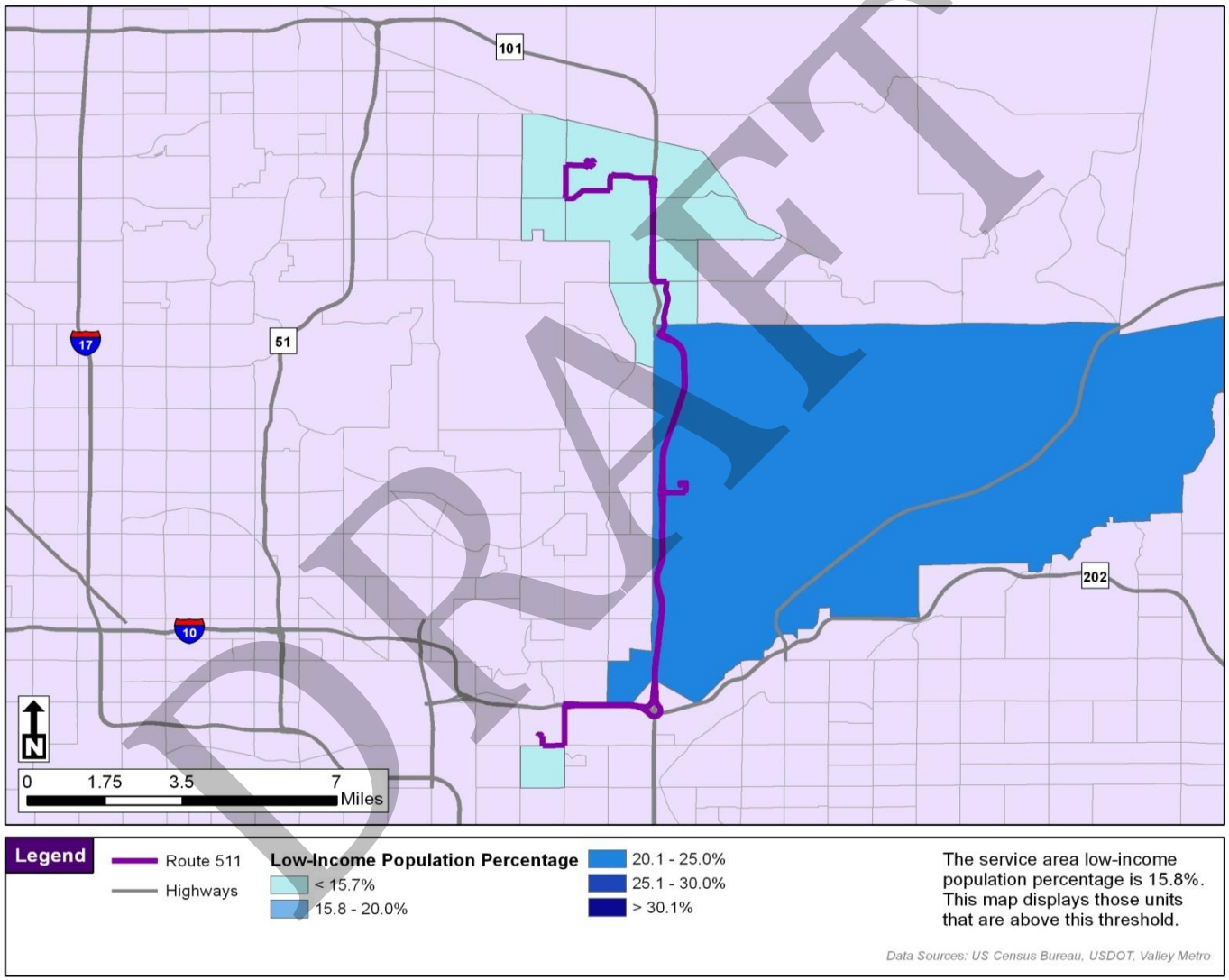
Route 511 - Proposed Service Modification & Low-Income Percentage



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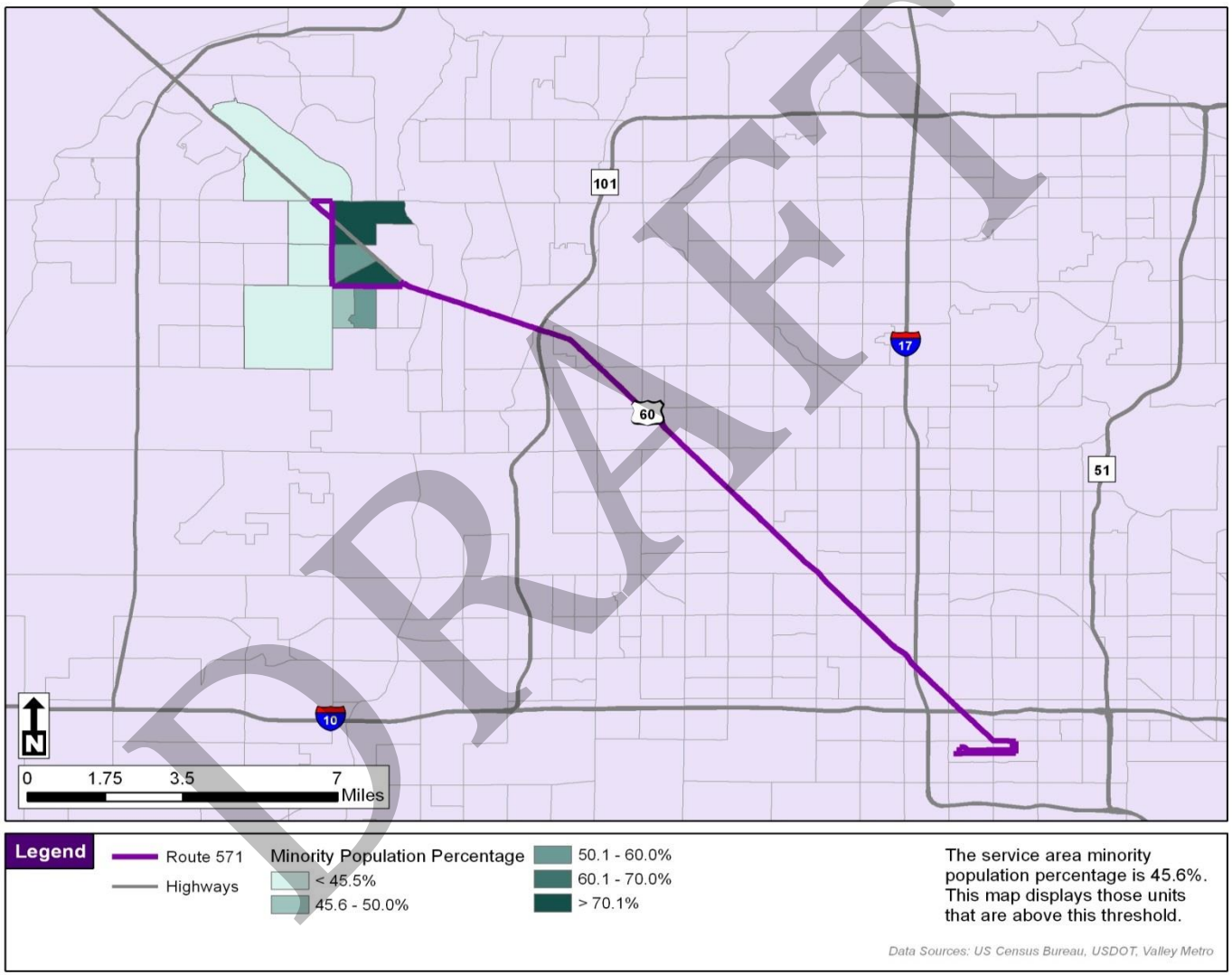
Route 571 - Proposed Service Modification & Minority Percentage



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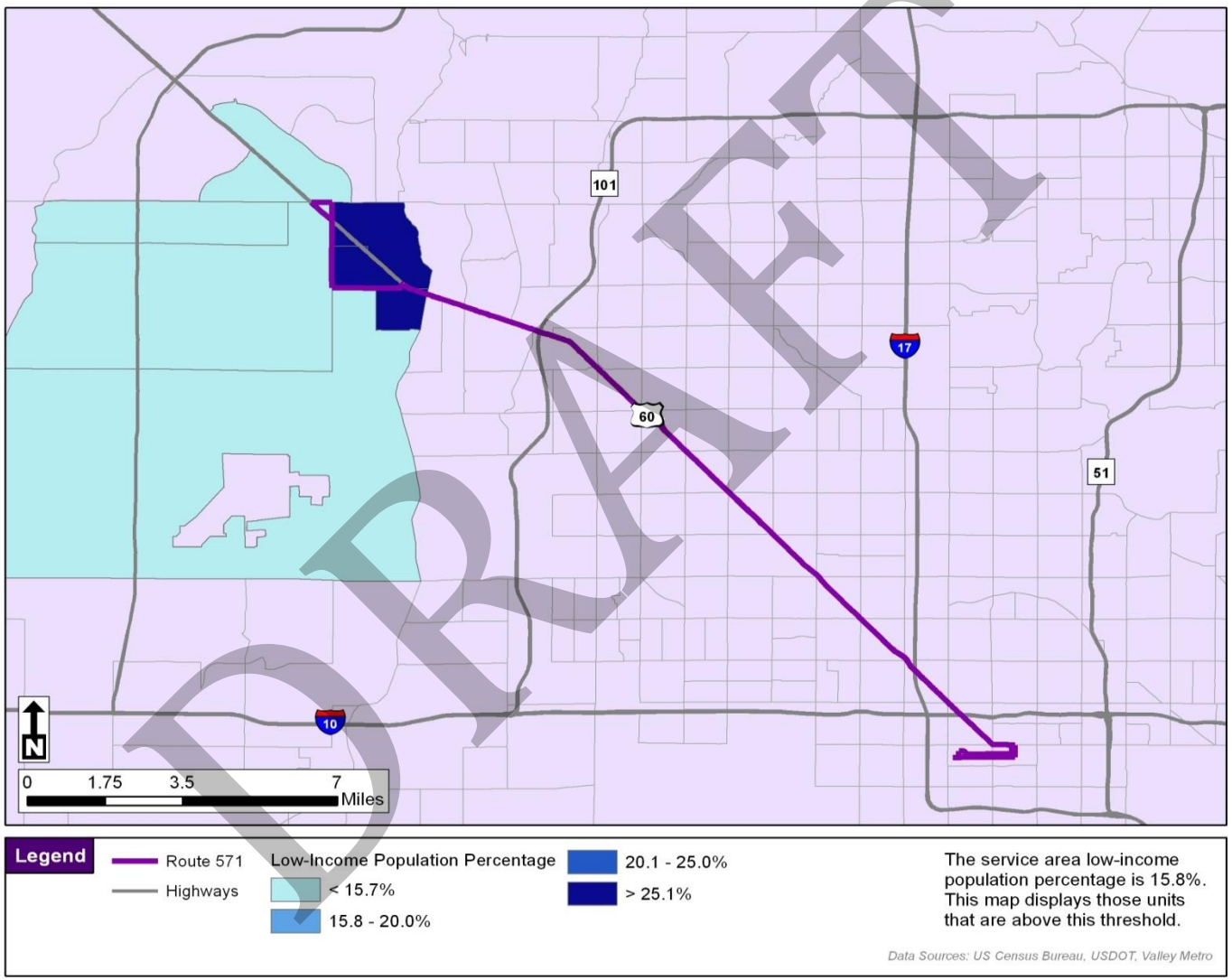
Route 571 - Proposed Service Modification & Low-Income Percentage



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VALLEY METRO
101 N. 1st Avenue, Suite 1300
Phoenix, AZ 85003

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AGENDA FOR CITY COUNCIL FORMAL MEETING
WEDNESDAY, November 7, 2018, 2:30 P.M.
CITY COUNCIL CHAMBERS, 200 WEST JEFFERSON ST.

ITEM 93 Approval of Federal Transit Administration Required 2018 Title VI Program Update **APPROVED 8-0**

Request City Council approval of the Federal Transit Administration (FTA) required 2018 Title VI Program update for the City of Phoenix Public Transit Department (PTD). The program plan will be effective Dec. 1, 2018 through Nov. 30, 2021.

Summary
As required by Title VI of the Civil Rights Act of 1964, "No person in the United States shall, on the grounds of race, color, and national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

Every three years, each recipient of federal funding must submit an updated Title VI Program that documents compliance with federal Title VI guidance. As the primary (designated) recipient of FTA funding in the Phoenix-Metro region, Public Transit is required to submit its updated program. The Title VI Program is also required by FTA guidance to be approved by the City Council.

Public Transit has collaborated with Valley Metro and regional partners to update the Title VI Program. Public Transit will submit the Title VI Plan to the FTA on behalf of the entire region.

The Title VI Program elements include the following:
- A signed Title VI assurance and governing body approval of the overall Title VI Program.
- A copy of the agency's public notice with a list of where the notice is posted.
- Instructions for how to file a complaint with a copy of the complaint form.
- A list of any Title VI investigations, lawsuits or complaints and how such complaints were addressed and resolved by the City of Phoenix Public Transit Department.
- A Public Participation Plan and list of outreach activities conducted since the last submission.
- A Language Assistance Plan for providing language assistance.
- A table depicting the racial composition of transportation-related committees, board, and advisory councils.
- Title VI analyses conducted for applicable facilities.
- System-wide standards and policies.
- Demographic and service profile maps and charts.
- Fare and Service Equity Policy.
- Origin and Destination data to include customer travel patterns and demographic markup.
- Service Monitoring Program.
- Description of how primary recipient of FTA funding monitors subrecipients.

The draft Public Transit Department 2018 Title VI Program Plan is available to the public at the Phoenix Public Transit Department located at 302 N. 1st Ave., 9th floor, Phoenix, 85003 and http://www.phoenix.gov/publictransitsite/Documents/2018-08-13_City-of-Phoenix_Title-VI-Program.pdf.

Responsible Department
This item is submitted by Deputy City Manager Mario Paniagua and the Public Transit Department.

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