

**PROJECT ASSESSMENT REPORT  
OAK STREET  
BICYCLE SAFETY CORRIDOR  
IMPROVEMENT PROJECT**

**PREPARED FOR**

**City of Phoenix**

**PREPARED BY**

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## 1.0 EXECUTIVE SUMMARY

The City of Phoenix was awarded a MAG Design Assistance Grant to complete a Project Assessment Report addressing safety improvements for the Oak Street bicycle corridor. The Oak Street bicycle corridor begins at the intersection of Oak Street and 3<sup>rd</sup> Street, continues east along Oak Street to SR-51, and utilizes the existing pedestrian bridge to cross SR-51. The corridor then continues north along the east side of SR-51. The corridor follows 20<sup>th</sup> Place between Oak Street and Sheridan Street, and then utilizes an existing concrete path between Sheridan Street and Thomas Road. The corridor crosses Thomas Road at the 20<sup>th</sup> Street/Thomas Road intersection, and then continues north along 20<sup>th</sup> Street to the Grand Canal.

The project assessment report will present and evaluate alternatives for improvements along the bicycle corridor with the goal of increasing bicycle safety. Possible improvements include striping of bicycle lanes, way-finding signs, signal improvements to better accommodate bicycles, and traffic calming measures.

Currently, the majority of Oak Street consists of 40-ft to 45-ft of asphalt pavement with curb & gutter and sidewalk on the north and south sides. There is an existing HAWK signal (High-intensity Activated crossWalk) at the 7<sup>th</sup> Street intersection, an existing traffic circle at 12<sup>th</sup> Street, and an existing traffic signal at the 16<sup>th</sup> Street intersection.

In most cases, all proposed alternatives can be completed within the existing right-of-way. In cases where the proposed improvements fall outside of the existing right-of-way, acquisition of right-of-way and temporary construction easements will be required.

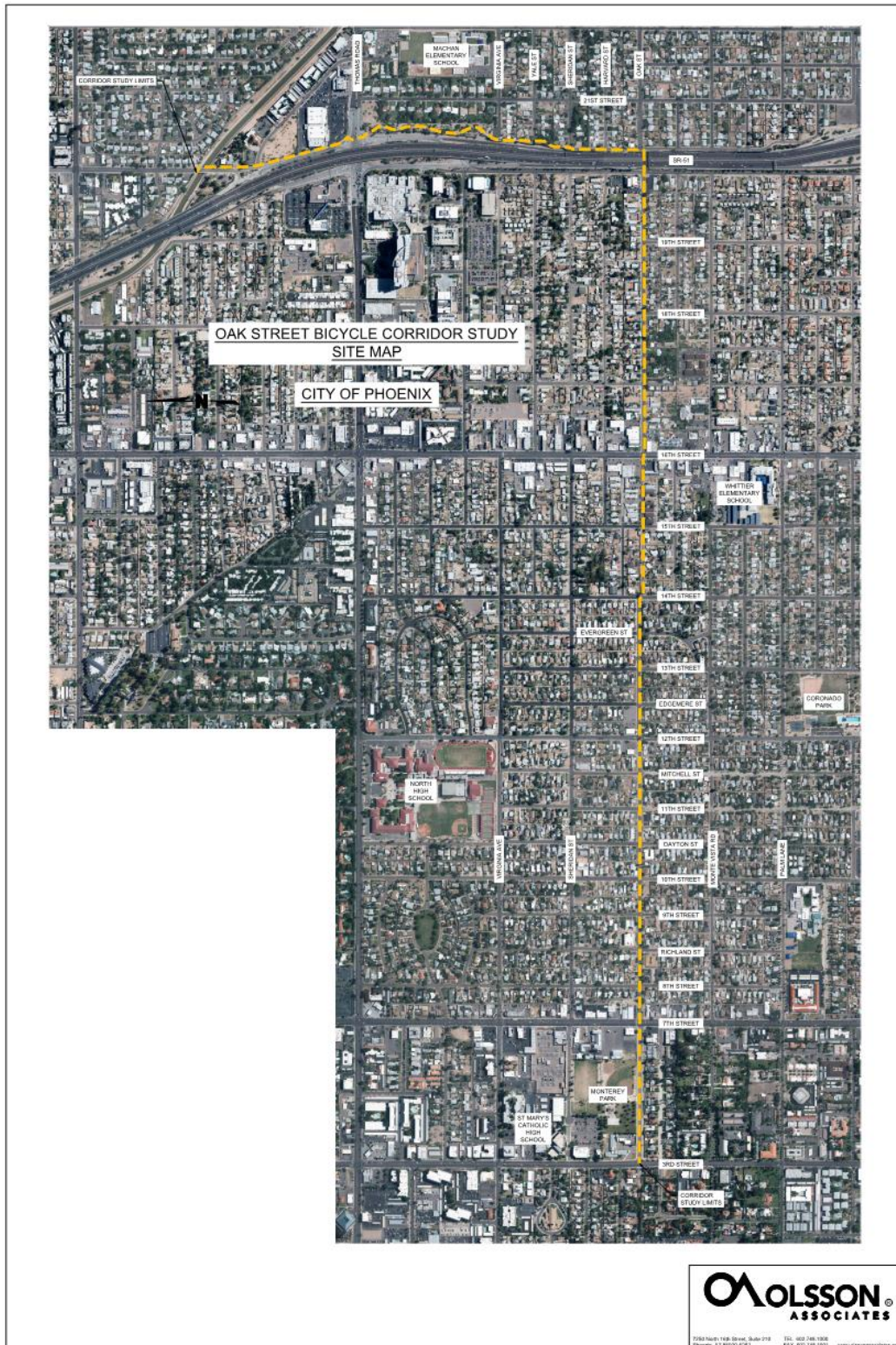
Existing lighting along the corridor will be replaced to comply with City of Phoenix Streetlighting Layout Guidelines, March 2013.

Drainage improvements may be required in various locations depending on the selected alternative. Where drainage improvements are necessary, the designer will evaluate low impact drainage design methods vs utilizing the existing City of Phoenix storm drain system. Low impact drainage design methods include bio-swales and pervious concrete.

Any landscaping that is impacted within the project limits will be replaced in kind. In various locations, the proposed alternative includes low maintenance landscaping improvements.

The study area will be divided into segments and various alternatives will be evaluated for each segment. Refer to **Figure 1 - Site Map (page 2)** for project location and limits. Refer to the appendix for proposed improvements.

Figure 1 - Site Map





## 2.0 BACKGROUND DATA

The City of Phoenix was awarded a MAG Design Assistance Grant to complete a Project Assessment Report addressing safety improvements for the Oak Street bicycle corridor to provide a low-stress environment for bicyclists. This project is listed as priority #13 in the adopted City of Phoenix Comprehensive Bicycle Master Plan. This project has the support of the City of Phoenix Street Transportation, Transit, and Planning Development Departments; Encanto Village Planning Committee; Midtown Transit Oriented Development Steering Committee; and St. Luke's Health Initiative. Meetings were held with Los Olivos Neighborhood Association, Coronado Neighborhood Association, Midtown Museum District, Thunderdome Neighborhood Associations, and East Alvarado Block Watch to receive feedback about the proposed project from residents who live along the corridor. Residents who attended expressed support for the project. A meeting was also held with ADOT representatives to explain the scope of the project, and to discuss how to handle any potential improvements within the ADOT right of way during the design phase.

Oak Street is a collector street in central Phoenix, one half mile south of Thomas Road and one-half mile north of McDowell Road. The City of Phoenix has identified Oak Street as a potential bicycle facility because as a collector street it is part of the city grid system, but has lower vehicle counts than the arterial street to the north and south. As a two lane roadway, Oak Street can provide a safe, easy, low-stress route for bicyclist regardless of experience level and confidence level. The Oak Street bicycle corridor begins at the intersection of Oak Street and 3<sup>rd</sup> Street, continues east along Oak Street to SR-51, and utilizes the existing pedestrian bridge to cross SR-51. The corridor then continues north along the east side of SR-51. The corridor follows 20<sup>th</sup> Place between Oak Street and Sheridan Street, and then utilizes an existing concrete path between Sheridan Street and Thomas Road. The corridor crosses Thomas Road at the 20<sup>th</sup> Street/Thomas Road intersection, and then continues north along 20<sup>th</sup> Street to the Grand Canal.

There are four historic neighborhoods (Alvarado, East Alvarado, Ashland Place, and Coronado), and three other vital neighborhoods within the project limits which will benefit from the proposed improvements. Five schools and two parks are within ¼ mile of bicycle corridor: St. Mary's High School, North High School, Whittier Elementary School, Ralph Waldo Emerson Elementary School, William T Machen Elementary School, Monterrey Park, and Coronado Park. Transit Route 7 (7<sup>th</sup> Street), Route 12 (12<sup>th</sup> Street), and Route 16 (16<sup>th</sup> Street) all intersect with Oak Street, and the Encanto Light Rail Stop is within 1/3 mile. The project will provide a safe route for bicyclists in these neighborhoods to access midtown and downtown Phoenix, schools and transit.

There is existing lighting along most of the proposed bicycle corridor. Roadway lighting on Oak Street is typically existing mast arms and luminaires on utility poles, with the spacing of the lighting determined by the locations of utility poles. At the intersection of 12<sup>th</sup> Street is an existing traffic circle with four existing decorative light poles at each corner of the intersection. There is existing lighting along the pedestrian crossing over SR 51, on 20<sup>th</sup> Place and 20<sup>th</sup> Street, and along the relatively short distance of existing pathway on the east side of northbound SR 51.

## EXISTING CONDITIONS

### Oak Street; 3<sup>rd</sup> Street to 7<sup>th</sup> Street

Oak Street currently has one eastbound and one westbound travel lane. The existing Oak Street cross section consists of 40-ft of asphalt pavement with a 4-inch broken yellow line along the center. Existing curb & gutter and 6-ft wide sidewalk are on both the north and south sides of Oak Street. Parking is restricted on the north side of Oak Street along Monterrey Park between 11pm and 6am. There are existing “No Parking” signs on the south side of Oak Street with arrows pointing behind the sidewalk. Vehicles are currently being parked along both sides of the road. The area behind the sidewalk is not landscaped. There are several existing driveway entrances along the south side of the road. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 1 (page 8).**

### Oak Street/7<sup>th</sup> Street Intersection

7<sup>th</sup> Street currently has three northbound and three southbound thru travel lanes. Oak Street has one eastbound thru land and one westbound thru lane. The intersection is uncontrolled, but there is an existing HAWK signal with a high visibility crosswalk across 7<sup>th</sup> Street for pedestrian use. The pedestrian push buttons for the HAWK signal are located on the north side of Oak Street. **See Photo 2 (page 8), and Photo 3 (page 9).**

### Oak Street; 7<sup>th</sup> Street to 10<sup>th</sup> Street

The existing Oak Street cross section consists of 45-ft of asphalt pavement, there is not any existing striping. Existing curb & gutter and 5-ft wide sidewalk are on both the north and south sides of Oak Street. On the north side of Oak Street, the sidewalk is offset 5-ft from the curb & gutter with a landscape buffer. On the south side of the road, the sidewalk is offset 15-ft from the curb & gutter with a landscape buffer. On-street parking is currently allowed on both sides of Oak Street. Near the 7<sup>th</sup> Street intersection, a high volume of vehicles are currently being parked on both sides of the road. The curb ramps have been upgraded to meet ADA guidelines in several locations, there are several remaining curb ramps that need to be evaluated for ADA compliance. The landscape buffer on the south side of the road has several large trees. The landscape buffer on the north side of the road is maintained by the adjacent property owners. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 4 (page 9).**

### Oak Street; 10<sup>th</sup> Street to Dayton Street

The existing Oak Street cross section consists of 24-ft of asphalt pavement. There is not any striping, curb & gutter, sidewalk, or curb ramps in this segment. Motorists currently use the existing shoulders for parking, especially on the south side of Oak Street. This segment of Oak Street has drainage issues during significant rainfall events. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 5 (page 10), and Photo 6 (page 10).**

### Oak Street; Dayton Street to 12<sup>th</sup> Street

The existing Oak Street cross section consists of 40-ft of asphalt pavement, there is not any existing striping. Existing curb & gutter and sidewalk are on both the north and south sides of Oak Street. On-street parking is currently allowed on both sides of Oak Street. The curb ramps have been upgraded to meet ADA guidelines in several locations, there are several remaining curb ramps that need to be evaluated for ADA compliance. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 7 (page 11).**

### Oak Street/12<sup>th</sup> Street Intersection

The 12<sup>th</sup> Street intersection is a traffic circle. The north and south legs of the traffic circle have existing splitter islands consisting of raised curb and concrete median filler. The east and west legs have striped splitter islands. There are not any marked crosswalks at any leg of the traffic circle, but there are curb ramps at all legs of the intersection. The central island is landscaped. 12<sup>th</sup> Street currently is striped for through lanes in each direction, a bicycle lane in the northbound direction, and a bike lane with an on-street parking lane in the southbound direction. Oak Street is striped for one through lane in each direction. There are four existing decorative light poles at each corner of the traffic circle. **See Photo 8 (page 11).**

### Oak Street; 12<sup>th</sup> Street to 14<sup>th</sup> Street

The existing Oak Street cross section consists of 40-ft of asphalt pavement, there is not any existing striping. Existing curb & gutter and sidewalk are on both the north and south sides of Oak Street. On-street parking is currently allowed on both sides of Oak Street. The curb ramps have been upgraded to meet ADA guidelines in several locations, there are several remaining curb ramps that need to be evaluated for ADA compliance. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 9 (page 12).**

### Oak Street/14<sup>th</sup> Street Intersection

There are existing stop signs on Oak Street in both the eastbound and westbound directions. 14<sup>th</sup> Street extends to Thomas Road on the north and McDowell Road on the south without any stop control. Residents of the area have expressed concern about high speeds on 14<sup>th</sup> Street. Oak Street on the east and west sides of 14<sup>th</sup> Street are slightly offset from one another. There is an existing mast arm and luminaire mounted to the existing utility pole at the southwest corner of the intersection. **See Photo 10 (page 12).**

### Oak Street; /14<sup>th</sup> Street to 15<sup>th</sup> Street

The Oak Street corridor from 14<sup>th</sup> Street to 15<sup>th</sup> Street is approximately 30-ft wide. The existing Oak Street cross section consists of 14-ft of asphalt pavement with 8-ft unpaved shoulder on either side. The corridor has block or wood fence on each side. The majority of the block fences are decorated with urban art. Residents of the community have indicated that the art is a point of pride for the community. The unpaved shoulders are not landscaped. On-street parking is currently restricted on the north side of the road. There are both overhead and underground utilities in this segment of the corridor. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 11 (page 13).**

### Oak Street; /15<sup>th</sup> Street to 16<sup>th</sup> Street

The existing Oak Street cross section consists of 24-ft of asphalt pavement with 3-ft unpaved shoulder on either side. The pavement is not striped. The existing right-of-way is approximately 30-ft wide. On-street parking is currently allowed on both sides of the road. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 12 (page 13).**

### Oak Street; /16<sup>th</sup> Street Intersection

The existing 16<sup>th</sup> Street intersection is currently controlled by a full traffic signal. 16<sup>th</sup> Street consists of two northbound thru lanes, two southbound thru lanes, a center turn lane, and no shoulders. Oak Street consists of one eastbound lane and one westbound lane. The curb ramps at all four corners need to be analyzed for ADA compliance. **See Photo 13 (page 14).**

### Oak Street; 16<sup>th</sup> Street to 18<sup>th</sup> Street

The existing Oak Street cross section consists of 40-ft of asphalt pavement, with an existing broken yellow stripe along the center. Existing curb & gutter and sidewalk are on both the north and south sides of Oak Street. On-street parking is currently allowed on both sides of Oak Street. In general, the curb ramps need to be evaluated for ADA compliance. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 14 (page 14).**

### Oak Street; 18<sup>th</sup> Street to 20<sup>th</sup> Street

The existing Oak Street cross section consists of 40-ft of asphalt pavement, with an existing broken yellow stripe along the center. Existing curb & gutter and sidewalk are on both the north and south sides of Oak Street. On-street parking is currently allowed on both sides of Oak Street. In general, the curb ramps need to be evaluated for ADA compliance. The existing roadway lighting consists of mast arms and luminaires mounted on existing utility poles. **See Photo 14 (page 14).**

### Oak Street/20<sup>th</sup> Street Intersection

There is an existing stop sign on Oak Street, and none on 20<sup>th</sup> Street. 20<sup>th</sup> Street runs parallel to SR-51, and extends to Thomas Road on the north and McDowell Road on the south without any stop control. There is one southbound and one northbound thru lane. There is a sound barrier wall on the east side of 20<sup>th</sup> Street between 20<sup>th</sup> Street and SR-51. There is also a painted crosswalk on the north side of Oak Street to cross 20<sup>th</sup> Street. The existing curb ramps need to be evaluated for ADA compliance. Oak Street intersects with 20<sup>th</sup> Street to form a "T" intersection. Oak Street is striped for a left turn and a right turn lane. There is a curb ramp on the east side of 20<sup>th</sup> Street between 20<sup>th</sup> Street and SR-51 to access the bicycle/pedestrian bridge across SR-51. There is an existing mast arm and luminaire mounted to the existing utility pole at the northwest corner of the intersection. There is also existing lighting on the ramp for the pedestrian/bicycle crossing over SR-51. **See Photo 15 (page 15).**



### 20<sup>th</sup> Place; Oak Street to Sheridan Street

20<sup>th</sup> Place runs parallel along the east side of SR-51. The existing pavement section consists of 24-ft of asphalt, curb & gutter on both the east and west sides of the road, and sidewalk behind the curb and gutter on the east side of the road. The existing road is not striped. There is a sound barrier wall on the west side of 20<sup>th</sup> Place between SR-51 and 20<sup>th</sup> Place. There is an existing striped crosswalk across 20<sup>th</sup> Place north of Oak Street to access the bicycle/pedestrian bridge over SR-51. The existing curb ramps along 20<sup>th</sup> Place need to be evaluated for ADA Compliance. The existing roadway lighting consists of mast arms and luminaires mounted on existing light poles. **See Photo 16 (page 15), and Photo 17 (page 16).**

### SR-51 Frontage; Sheridan Street to Thomas Road

There is an existing, meandering, 8-ft wide concrete sidewalk along SR-51. The path can be accessed at Yale Street and Virginia Avenue, the existing curb ramps at these locations need to be evaluated for ADA compliance. The concrete path has existing lighting along the length of the path. There is existing landscaping along the length of the path. There is existing lighting along the existing path. **See Photo 18 (page 16).**

### 20<sup>th</sup> Street/Thomas Road Intersection

20<sup>th</sup> Street, on the south leg of the intersection consists of three northbound thru lanes, and two left turn lanes. There are two existing free-right turn lanes with a median island, but there is not a dedicated northbound right turn lane to access the free right turns. The existing radius at the free right turns is 120-ft. The existing concrete path crosses the free right turn to access the crosswalk across Thomas Road. There is a painted crosswalk across the free right turns, but no signal control across the free right lanes. Thomas Road consists of three eastbound thru lanes, three westbound thru lanes, two left turn lanes, and a right turn lane with a free right turn. The free right turn on the north leg has an existing radius of 170-ft. There is a painted crosswalk across the free right, but no signal control. There is an existing hedge on the northeast corner of the intersection that obscures the view for westbound vehicles making the right turn. There is an existing pedestrian push button for pedestrians and bicyclists crossing Thomas Road. **See Photo 19 (page 17), Photo 20 (page 17), and Photo 21 (page 18).**

### 20<sup>th</sup> Street; Thomas Road to Grand Canal

20<sup>th</sup> Street runs parallel to SR-51 until it enters the freeway. The right lane splits and continues north. There is an existing 10-ft wide sidewalk on the east side of 20<sup>th</sup> Street from Thomas Road to Greenfield Road. The existing curb ramps need to be evaluated for ADA compliance. The existing sidewalk north of Greenfield Road is approximately 6-ft wide. There is an existing bridge over the Grand Canal, and dirt roads on both sides of the canal intersect with 20<sup>th</sup> Street. There is existing lighting at the back of existing sidewalk along 20<sup>th</sup> Street, between Thomas Road and Greenfield Road. Existing lighting along 20<sup>th</sup> Street, between Greenfield Road and the Grand Canal, consists of mast arms and luminaires mounted on existing utility poles. **See Photo 22 (page 18), and Photo 23 (page 19).**

Photo 1 - Oak Street/3rd Street Looking East



Photo 2 - Oak Street/7th Street Intersection Looking Northeast





Photo 3 - Oak Street/7th Street Looking Northwest



Photo 4 - Oak Street/8th Street Looking East



Photo 5 - Oak Street/10th Street Looking East



Photo 6 - Oak Street/Dayton Street Looking West





Photo 7 - Oak Street/Dayton Street Looking East



Photo 8 - Oak Street/12th Street Looking East



Photo 9 - Oak Street/13th Street Looking East



Photo 10 - Oak Street/14th Street Looking East





Photo 11 - Oak Street/14th Street Looking East



Photo 12 - Oak Street/15th Street Looking East



Photo 13 - Oak Street/16th Street Looking North



Photo 14 - Oak Street/18th Street Looking East

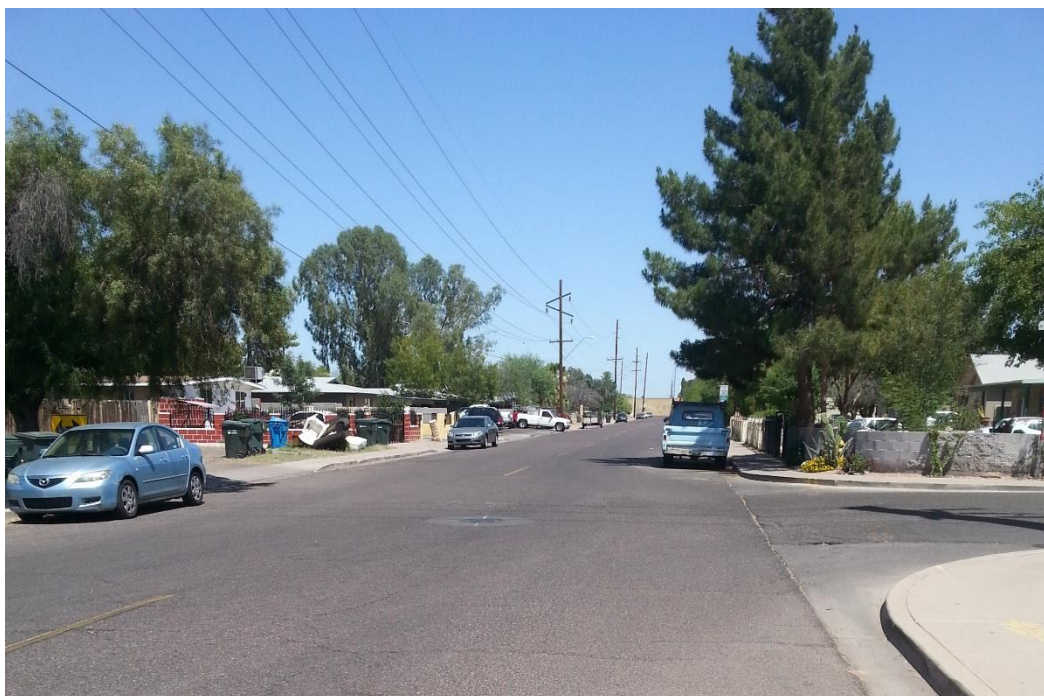




Photo 15 - Oak Street/20th Street Looking East



Photo 16 - 20th Place/Oak Street Looking West





Photo 17 - 20th Place/Oak Street Looking North



Photo 18 - Thomas Road Intersection Looking South



Photo 19 - Thomas Road Intersection Looking North



Photo 20 - Thomas Road Intersection Looking Southeast





Photo 21 - Thomas Road Intersection Looking North



Photo 22 - 20th Street/Greenfield Road Looking North





Photo 23 - 20th Street/grand Canal Looking North



### 3.0 PROJECT SCOPE

The project study area, for the Oak Street bicycle corridor safety improvements begins at the intersection of Oak Street and 3<sup>rd</sup> Street, continues east along Oak Street to SR-51, and utilizes the existing pedestrian bridge to cross SR-51. The corridor then continues north along the east side of SR-51. The corridor follows 20<sup>th</sup> Place between Oak Street and Sheridan Street, and then utilizes an existing concrete path between Sheridan Street and Thomas Road. The corridor crosses Thomas Road at the 20<sup>th</sup> Street/Thomas Road intersection, and then continues north along 20<sup>th</sup> Street to the Grand Canal. The project length is approximately 13,700-ft (2.60-miles).

This project is expected to be constructed as a stand-alone project, and will be completed in accordance with the most recent editions of the City of Phoenix Street Planning and Design Guidelines, the City of Phoenix Standard Specifications and Details for Public Works Construction, the City of Phoenix Comprehensive Bicycle Master Plan, the AASHTO Guide for the Development of Bicycle Facilities, and the NACTO Urban Bikeway Design Guide.

The project will include striping and signing to designate bicycle lanes, traffic lanes, on-street parking, etc. Signing will include improved way-finding signage to define the proposed bicycle corridor. Striping improvements will include the installation of pavement markings such as arrows and bicycle symbols. Pavement markings may also include the installation of green pavement markings to designate the bike lane. Stamped asphalt crosswalks will also be installed in various locations. All pavement markings will be composed of preformed thermoplastic. Installation of flexible delineators will be evaluated to create a separated two-way cycle track.

As part of the project the existing pavement will be evaluated to provide pavement rehabilitation treatments such as a micro-surfacing treatment. In various locations, the project may include the installation of concrete curb & gutter and concrete sidewalk, as well as the reconstruction of the existing pavement. The project will reconstruct curb ramps throughout the length of the corridor to meet ADA requirements. Installation of these improvements may impact the existing storm drainage system. The designer will evaluate alternatives to provide low impact drainage improvements such as bio-swailes, or pervious concrete. The designer will also evaluate connections to the existing storm drainage system.

All major intersections, 7<sup>th</sup> Street, 12<sup>th</sup> Street, 16<sup>th</sup> Street, and Thomas Road will be evaluated to provide the safest alternative for bicyclists. Potential improvements may include traffic signal improvements to provide push buttons for bicyclists. Other improvements may include bicycle detection devices. The existing traffic circle at 12<sup>th</sup> Street will remain in place with minor modifications. Modifications include splitter islands to calm traffic through the traffic circle. Improvement will also include improved signage, pavement markings, and stamped asphalt crosswalks. Improvements at the Thomas Road intersection may include reconstruction of the free right turns, raised islands, concrete curb & gutter, concrete sidewalk, etc. The proposed improvements may include reconstruction of the existing traffic signal. All intersection improvements will require coordination with the City of Phoenix Traffic Department. Proposed improvements at the Thomas Road intersection will also require coordination with the Arizona Department of Transportation.

#### LIGHTING

##### Proposed Light Pole Placement

The crossroad spacing along the Oak Street bicycle corridor is approximately 330 feet. This reflects the historic layout of the roads, with the arterial spacing at one-mile, collector

spacing at one-half mile, and the local road spacing at a fraction of the collector spacing. 330 feet is approximately 1/16 of a mile.

In order to provide uniform light pole spacing, the proposed roadway lighting was developed to work with the spacing of the existing crossroads. Assuming two poles between each crossroad, this is an approximate pole spacing of 165' along Oak Street. The proposed spacing is consistent with a typical roadway lighting system. However, this spacing is closer than the guidance provided in the current City of Phoenix document titled *City of Phoenix Streetlighting Layout Guidelines, March 2013*, which recommends a spacing of 200 feet to 250 feet on collector roads.

Light poles would be installed on one side of the roadway, at the back of sidewalk, in a non-staggered configuration. The side of the road that the lights are on could change block by block as needed, determined by existing utilities and right of way. The pole spacing would be shifted so that poles are at the intersections or mid-block alleys when possible. Poles should be also located closer to property lines. **Figure 2** shows a typical pair of poles per block.

**Figure 2 - Typical Light Pole Spacing**



Oak Street between 14<sup>th</sup> Street and 15<sup>th</sup> Street is an existing alleyway. Lighting in the alleyway would be provided by bollards, to reduce light trespass. The bollards would be spaced at approximately 30 feet, along the right of way line, and would function more as guidance through this short section of the corridor.

Adjacent to SR 51, between 20<sup>th</sup> Place and Thomas Road, existing lighting along the existing pathway would also be replaced with bollards. The bollards would be spaced at approximately 30 feet, set back from the pathway, and would provide guidance along the pathway.

New light poles would be installed along Oak Street, 20<sup>th</sup> Place and 20<sup>th</sup> Street, within the project limits.

The proposed poles along Oak Street would replace the existing mast arms and luminaires that are currently located on utility poles.

#### Proposed Equipment

The proposed lighting utilizes a typical City of Phoenix pole and mast arm that allows for a 32-foot mounting height and includes a 6-foot mast arm.

The proposed bollards along Oak Street between 14<sup>th</sup> Street and 15<sup>th</sup> Street, and along the existing pathway on the east side of SR 51, would be a simple design, with the light aimed down and the light source shielded. The bollards along can be either “crash rated” or “un-rated” type, dependent on the need for survivability or replaceability if they are “hit” by vehicles.

#### Design Roadway Luminaire

The roadway luminaire used for this concept was the 88 watt GE Lighting Evolve LED Roadway Lighting, with “E1”, an asymmetric (medium) distribution. The Oak Street bicycle corridor is narrow, typically includes residences on both sides, and requires a cut-off luminaire with a narrow distribution.

#### Design Criteria

The current City of Phoenix document titled *City of Phoenix Streetlighting Layout Guidelines, March 2013*, on page 34 shows typical collector lighting spaced at 200 feet to 250 feet. The guidelines, on page 7, also specifies a 106 Watt LED luminaire. The proposed roadway lighting for the Oak Street corridor uses a closer spacing at a lower wattage so the resulting lighting levels would be comparable.

### **RIGHT OF WAY**

The majority of proposed improvements will be constructed within the existing right-of way. Various alternatives may require the acquisition of right-of-way or easements to install lighting improvements, and to construct new concrete curb & gutter, sidewalks, curb ramps, drainage improvements, or traffic signal improvements. Acquisition of construction easements will be evaluated and determined during the final design.

### **UTILITY ADJUSTMENTS**

Existing utility impacts within the corridor will depend on the chosen alternative. In general, utility improvements are expected to be limited to adjusting boxes and covers to new finished grade. Utility adjustments will be more significant where the chosen alternative includes storm drain improvements. Utility impacts at intersections may be significant dependent upon the proposed improvements such as relocation of signal poles and conduit. The estimate will show utility adjustments for each alternative that includes new roadway lighting, to account for any utilities that are impacted by new light poles or conduit and conductors. Utility impacts and adjustments will be analyzed during the final design.

### **LANDSCAPING**

Landscaping improvements within the corridor will be limited. Where landscaping improvements are proposed, improvements will include low maintenance xeriscape type landscaping. These improvements will not include irrigation improvements. In locations where existing landscaping is impacted, it will be replaced in kind.



## 4.0 PROJECT DEVELOPMENT

### 4.1 Alternatives

Alternatives have been developed for different segments throughout the project. See the appendix for further information on the proposed alternatives and estimated costs for each segment.

#### Oak Street; 3<sup>rd</sup> Street to 7<sup>th</sup> Street

##### *Alternative 1*

- Stripe Oak Street to provide bicycle lanes in both the eastbound and westbound directions.
- On-street parking will be allowed on the north side of the road, and restricted completely on the south side of the road.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, two 6-ft bicycle lanes, and 8-ft of on-street parking.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Include a turn lane bicycle box at the 3<sup>rd</sup> Street intersection.
- Provide signage and pavement markings at 7<sup>th</sup> Street to direct eastbound bicyclists to cross to the north side of Oak Street. Bicyclist will use the north side of Oak Street at the 7<sup>th</sup> Street intersection to access a two-way cycle track and the existing HAWK signal.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Install new low maintenance landscaping on the south side of Oak Street behind the existing sidewalk.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

##### *Alternative 2*

- Stripe Oak Street to provide a separated two-way cycle track on the north side of Oak Street.
- On-street parking will be allowed on the south side of the road and restricted completely on the north side of the road.
- The proposed Oak Street typical section consists of a 10-ft two-way cycle track, a 3-ft buffer, two 10-ft traffic lanes, and 7-ft of on-street parking.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Install new low maintenance landscaping on the south side of Oak Street behind the existing sidewalk.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.



## Oak Street/7<sup>th</sup> Street Intersection

### **Alternative 1**

- The existing HAWK signal will remain in place and will be modified for bicycle use.
- Modifications include new push buttons that can be accessed without dismounting the bicycle.
- Modifications include the installation of “Bikes OK” signals to be used with the “Walk” signal.
- Provide appropriate signage and pavement markings to improve pedestrian and bicycle safety at the HAWK signal.
- Provide a stamped asphalt sidewalk across 7<sup>th</sup> Street.

### **Alternative 2A**

- The existing HAWK signal will remain in place.
- Reconfigure the existing intersection to operate as a TOUCAN type signal.
- The TOUCAN signal will funnel bicyclists to the center of Oak Street.
- The TOUCAN signal will eliminate thru traffic on Oak Street, as well as left turns off of 7<sup>th</sup> Street. Traffic movements will be restricted to “right-in/right-out”.
- The TOUCAN signal includes installation of raised islands.
- Relocate all pedestrian push buttons to operate with the TOUCAN signal.
- Provide appropriate signage and pavement markings to improve pedestrian and bicycle safety at the HAWK signal.
- Provide a stamped asphalt sidewalk across 7<sup>th</sup> Street.

### **Alternative 2B**

- The existing HAWK signal will be removed and salvaged.
- Install a new traffic signal to provide a signal controlled intersection.
- Reconfigure the existing intersection to operate as a TOUCAN type signal.
- The TOUCAN signal will funnel bicyclists to the center of Oak Street.
- The TOUCAN signal will eliminate thru traffic on Oak Street, as well as left turns off of 7<sup>th</sup> Street. Traffic movements will be restricted to “right-in/right-out”.
- The TOUCAN signal includes installation of raised islands.
- Relocate all pedestrian push buttons to operate with the TOUCAN signal. Improvements may also include bicycle detection equipment to activate the signal.
- Provide appropriate signage and pavement markings to improve pedestrian and bicycle safety at the HAWK signal.
- Provide a stamped asphalt sidewalk across 7<sup>th</sup> Street.

## Oak Street; 7<sup>th</sup> Street to 10<sup>th</sup> Street

### Alternative 1

- Stripe Oak Street to provide bicycle lanes in both the eastbound and westbound directions.
- On-street parking will be allowed on both the north and south sides of the road.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, two 6-ft bicycle lanes, and 7-ft of on-street parking on both sides of the road.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Include a turn lane bicycle box at the 3<sup>rd</sup> Street intersection.
- Provide signage and pavement markings at 7<sup>th</sup> Street to direct eastbound bicyclists to cross from the north side of Oak Street. Bicyclist will use the north side of Oak Street at the 7<sup>th</sup> Street intersection to access a two-way cycle track and the existing HAWK signal.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Remove the existing 5-ft wide sidewalk on the south side of Oak Street, and install new 8-ft wide sidewalk. Sidewalk improvements include new curb ramps to meet ADA requirements.
- Existing landscaping that is impacted by the new sidewalk installation is to be replace in kind.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### Alternative 2

- Stripe Oak Street to provide a separated two-way cycle track on the north side of Oak Street.
- On-street parking will be allowed on the south side of the road and restricted completely on the north side of the road.
- The proposed Oak Street typical section consists of a 12-ft two-way cycle track, a 3-ft buffer, two 11-ft traffic lanes, and 8-ft of on-street parking.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Remove the existing 5-ft wide sidewalk on the south side of Oak Street, and install new 8-ft wide sidewalk. Sidewalk improvements include new curb ramps to meet ADA requirements.
- Existing landscaping that is impacted by the new sidewalk installation is to be replace in kind.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

## Oak Street; 10<sup>th</sup> Street to Dayton Street

### **Alternative 1**

- Stripe Oak Street to provide shared use lanes in both the eastbound and westbound directions.
- On-street parking will not be allowed on either side of Oak Street.
- The proposed Oak Street typical section consists of two 12-ft shared-use lanes.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc. Pavement markings include shared lane markings in each lane.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### **Alternative 2A**

- Reconstruct and widen Oak Street, improvements include new concrete curb and gutter, sidewalks, and curb ramps.
- Stripe Oak Street to provide bike lanes in both the eastbound and westbound directions.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, and two 6-ft bicycle lanes with on-street parking on the south side of Oak Street.
- Utilize low impact drainage improvements, such as bio-swales and pervious concrete.
- Install new low maintenance landscaping on the both sides of Oak Street.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### **Alternative 2B**

- Reconstruct and widen Oak Street, improvements include new concrete curb and gutter, sidewalks, and curb ramps.
- Stripe Oak Street to provide bike lanes in both the eastbound and westbound directions.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, and two 6-ft bicycle lanes with on-street parking on the south side of Oak Street.
- Drainage improvements will connect to the existing City of Phoenix drainage system.
- Install new low maintenance landscaping on the both sides of Oak Street.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.



## Oak Street; Dayton Street to 12<sup>th</sup> Street

### Alternative 1

- Stripe Oak Street to provide bicycle lanes in both the eastbound and westbound directions.
- On-street parking will be allowed on the north side of the road, and restricted completely on the south side of the road.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, two 6-ft bicycle lanes, and 8-ft of on-street parking.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Install new splitter islands at the 12<sup>th</sup> Street traffic circle intersection.
- Provide stamped asphalt crosswalks at all four legs of the intersection.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### Alternative 2

- Stripe Oak Street to provide a separated two-way cycle track on the north side of Oak Street.
- On-street parking will be allowed on the south side of the road and restricted completely on the north side of the road.
- The proposed Oak Street typical section consists of a 10-ft two-way cycle track, a 3-ft buffer, two 10-ft traffic lanes, and 7-ft of on-street parking.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Install new splitter islands at the 12<sup>th</sup> Street traffic circle intersection.
- Remove existing curb and gutter and sidewalk on the northwest and northeast corners of the traffic circle.
- Install new curb and gutter and widened sidewalk on the northwest and northeast corners of the traffic circle. Sidewalk improvements include installation of new curb ramps.
- Provide stamped asphalt crosswalks at all four legs of the intersection.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

## Oak Street; 12<sup>th</sup> Street to 14<sup>th</sup> Street

### Alternative 1

- Stripe Oak Street to provide bicycle lanes in both the eastbound and westbound directions.
- On-street parking will be allowed on the north side of the road, and restricted completely on the south side of the road.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, two 6-ft bicycle lanes, and 8-ft of on-street parking.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### Alternative 2

- Stripe Oak Street to provide a separated two-way cycle track on the north side of Oak Street.
- On-street parking will be allowed on the south side of the road and restricted completely on the north side of the road.
- The proposed Oak Street typical section consists of a 10-ft two-way cycle track, a 3-ft buffer, two 10-ft traffic lanes, and 7-ft of on-street parking.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

## Oak Street/14<sup>th</sup> Street Intersection

### **Alternative 1**

- Install a speed table at the Oak Street/14<sup>th</sup> Street intersection to calm 14<sup>th</sup> Street traffic.
- The speed table includes reconstruction of existing curb ramps to function with the speed table.
- Includes the adjustment of any utilities or drainage items that might be impacted by the proposed speed table.
- Provide appropriate signage and pavement markings to warn of the traffic calming device.
- Install stop signs at the intersection to provide a 4-way stop controlled intersection.
- Provide stamped asphalt crosswalks across 14<sup>th</sup> Street.

### **Alternative 2**

- Install a speed table at the Oak Street/14<sup>th</sup> Street intersection to calm 14<sup>th</sup> Street traffic.
- The speed table includes reconstruction of existing curb ramps to function with the speed table.
- Includes the adjustment of any utilities or drainage items that might be impacted by the proposed speed table.
- Provide appropriate signage and pavement markings to warn of the traffic calming device.
- Install rapid rectangular flashing beacons for use by bicyclists and pedestrians crossing 14<sup>th</sup> Street.
- Provide stamped asphalt crosswalks across 14<sup>th</sup> Street



## Oak Street; 14<sup>th</sup> Street to 15<sup>th</sup> Street

### Alternative 1

- Install shared lane markings to provide shared use lanes in each direction.
- The proposed typical section consists of 14-ft of pavement.
- On-street parking will be restricted on both sides of the street.
- Install speed humps to provide traffic calming on Oak Street.
- Install new low maintenance landscaping on both sides of Oak Street.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway bollard lighting, including new conduit and conductors.

### Alternative 2A

- Mill the existing Oak Street pavement to install a new asphalt pavement overlay.
- Include a stamped asphalt pattern in the center of Oak Street.
- Provide shared lane markings to provide shared use lanes in each direction.
- The proposed typical section consists of 14-ft of pavement,
- On-street parking will be restricted on both sides of the street.
- Utilize low impact drainage improvements, such as bio-swales.
- Install new low maintenance landscaping on both sides of Oak Street.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway bollard lighting, including new conduit and conductors.

### Alternative 2B

- Reconstruct the Oak Street pavement section to provide new pervious concrete pavement.
- Include a stamped pattern in the center of Oak Street.
- Provide shared lane markings to provide shared use lanes in each direction.
- The proposed typical section consists of 14-ft of pavement.
- On-street parking will be restricted on both sides of the street.
- Utilize low impact drainage improvements, such as bio-swales.
- Install new low maintenance landscaping on both sides of Oak Street.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway bollard lighting, including new conduit and conductors.

### Alternative 3

- Abandon Oak Street as the preferred bicycle route in favor of Hoover Avenue to the north.
- Includes all pavement markings and signage to direct bicyclists to use Hoover Avenue as the preferred bicycle route.

## Oak Street; 15<sup>th</sup> Street to 16<sup>th</sup> Street

### Alternative 1

- Stripe Oak Street to provide shared use lanes in both the eastbound and westbound directions.
- On-street parking will not be allowed on either side of Oak Street.
- The proposed Oak Street typical section consists of two 12-ft shared-use lanes.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc. Pavement marking include shared lane markings in each lane.
- Reconstruct the existing curb ramps at 16<sup>th</sup> Street to meet ADA requirements.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### Alternative 2A

- Mill the existing Oak Street pavement to install a new asphalt pavement overlay.
- Include a stamped asphalt pattern in the center of Oak Street.
- Stripe Oak Street to provide shared use lanes in both the eastbound and westbound directions.
- On-street parking will not be allowed on either side of Oak Street.
- The proposed Oak Street typical section consists of two 12-ft shared use lanes.
- Utilize low impact drainage improvements such as bio-swales.
- Reconstruct the existing curb ramps at 16<sup>th</sup> Street to meet ADA requirements.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### Alternative 2B

- Reconstruct the Oak Street pavement section to provide new pervious concrete pavement.
- Include a stamped pattern in the center of Oak Street.
- Stripe Oak Street to provide shared use lanes in both the eastbound and westbound directions.
- On-street parking will not be allowed on either side of Oak Street.
- The proposed Oak Street typical section consists of two 12-ft shared use lanes.
- Utilize low impact drainage improvements such as bio-swales.
- Reconstruct the existing curb ramps at 16<sup>th</sup> Street to meet ADA requirements.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.



## Oak Street; 15<sup>th</sup> Street to 16<sup>th</sup> Street

### **Alternative 3A**

- Reconstruct and widen Oak Street, improvements include new concrete curb and gutter, sidewalks, and curb ramps.
- Stripe Oak Street to provide bike lanes in both the eastbound and westbound directions.
- On-street parking will not be allowed on either side of Oak Street.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, and two 6-ft bicycle lanes.
- The proposed Oak Street typical section requires the acquisition of 16-ft of additional right of way. 8-ft of right of way will be acquired on each side of Oak Street.
- Drainage improvements will connect to the existing City of Phoenix drainage system.
- Install new low maintenance landscaping on the both sides of Oak Street.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### **Alternative 3B**

- Reconstruct and widen Oak Street, improvements include new concrete curb and gutter, sidewalks, and curb ramps.
- Stripe Oak Street to provide bike lanes in both the eastbound and westbound directions.
- On-street parking will not be allowed on either side of Oak Street.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, and two 6-ft bicycle lanes.
- The proposed Oak Street typical section requires the acquisition of 16-ft of additional right of way. 8-ft of right of way will be acquired on each side of Oak Street.
- Utilize low impact drainage improvements, such as bio-swales and pervious concrete.
- Install new low maintenance landscaping on the both sides of Oak Street.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

### Oak Street; 16<sup>th</sup> Street to 18<sup>th</sup> Street

#### *Alternative 1*

- Stripe Oak Street to provide bicycle lanes in both the eastbound and westbound directions.
- On-street parking will be allowed on the north side of the road, and restricted completely on the south side of the road.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, two 6-ft bicycle lanes, and 8-ft of on-street parking.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors

### Oak Street; 18<sup>th</sup> Street to 20<sup>th</sup> Street

#### *Alternative 1*

- Stripe Oak Street to provide bicycle lanes in both the eastbound and westbound directions.
- On-street parking will be allowed on the north side of the road, and restricted completely on the south side of the road.
- The proposed Oak Street typical section consists of two 10-ft traffic lanes, two 6-ft bicycle lanes, and 8-ft of on-street parking.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide signage and pavement markings at 20<sup>th</sup> Street to direct eastbound bicyclists to cross to the north side of Oak Street. Bicyclist will use the north side of Oak Street at the 20<sup>th</sup> Street intersection to access a two-way cycle track and the existing crosswalk across 20<sup>th</sup> Street.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Remove existing luminaires and mast arms from existing utility poles. Install new roadway lighting, including new conduit and conductors.

## Oak Street/20<sup>th</sup> Street Intersection

### **Alternative 1**

- Install a speed table at the Oak Street/20<sup>th</sup> Street intersection to calm 20<sup>th</sup> Street traffic.
- The speed table includes reconstruction of existing curb ramps to function with the speed table.
- Includes the adjustment of any utilities or drainage items that might be impacted by the proposed speed table.
- Provide appropriate signage and pavement markings to warn of the traffic calming device.
- Install stop signs at the intersection to provide a 4-way stop controlled intersection.
- Provide stamped asphalt crosswalks across 20<sup>th</sup> Street.

### **Alternative 2**

- Install a speed table at the Oak Street/20<sup>th</sup> Street intersection to calm 20<sup>th</sup> Street traffic.
- The speed table includes reconstruction of existing curb ramps to function with the speed table.
- Includes the adjustment of any utilities or drainage items that might be impacted by the proposed speed table.
- Provide appropriate signage and pavement markings to warn of the traffic calming device.
- Install rapid rectangular flashing beacons for use by bicyclists and pedestrians crossing 20<sup>th</sup> Street.
- Provide stamped asphalt crosswalks across 20<sup>th</sup> Street



## 20<sup>th</sup> Place; Oak Street to Thomas Road

### Alternative 1

- Install shared lane markings in both the northbound and southbound directions on 20<sup>th</sup> Place between Oak Street and Sheridan Street.
- On-street parking will be restricted on both sides of the street.
- The proposed 20<sup>th</sup> Place typical section, between Oak Street and Sheridan Street consists of 24-ft of pavement.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Stripe the existing 8-ft concrete path with a 4-inch broken yellow line along the center. Stripe the existing path from Sheridan Street to Thomas Road.
- Reconstruct existing curb ramps along the concrete path, at Yale Street and at Virginia Avenue, to meet ADA requirements.
- Remove existing luminaires and mast arms. Install new roadway lighting along 20<sup>th</sup> place between Oak Street and Sheridan Street. Install new roadway bollard lighting along the existing concrete path between Sheridan Street and Thomas Road. Lighting improvements include new conduit and conductors.

### Alternative 2

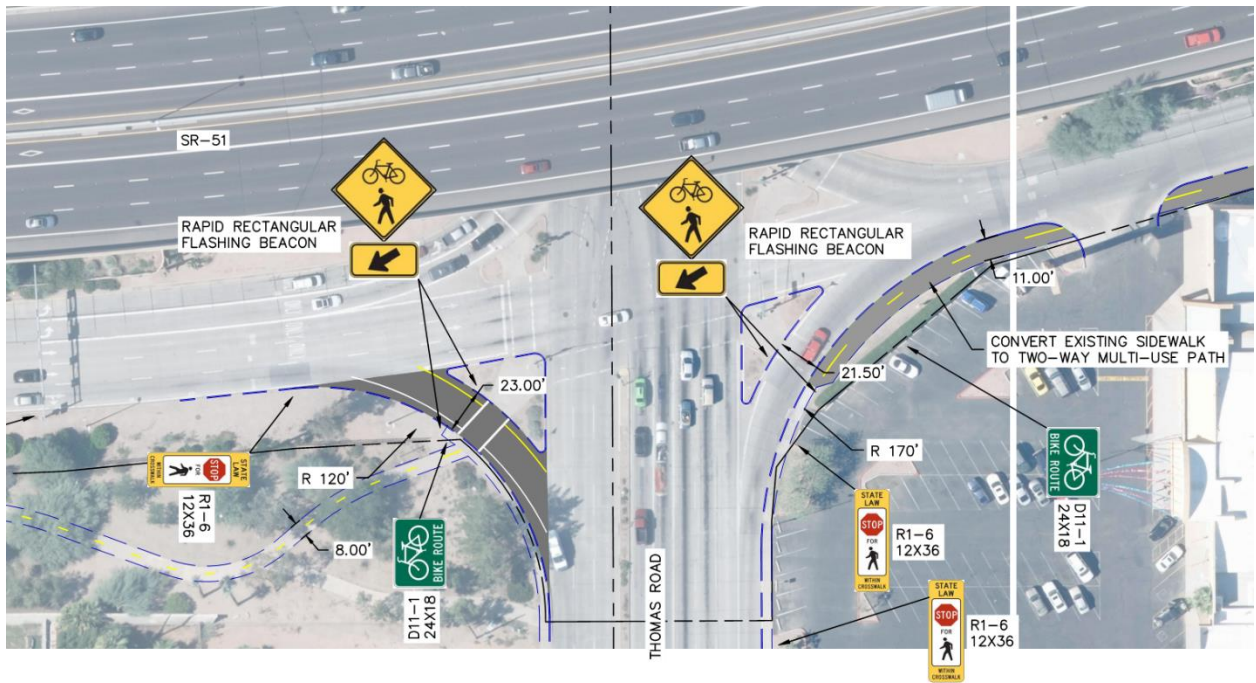
- Stripe 20<sup>th</sup> Place to provide a separated two-way cycle track on the west side of 20<sup>th</sup> Place, and convert the east side of 20<sup>th</sup> Place to one-way traffic.
- On-street parking will be restricted on both sides of the street.
- The proposed 20<sup>th</sup> Place typical section, between Oak Street and Sheridan Street consists of a 10-ft two-way cycle track, a 2-ft buffer, and one 12-ft one-way traffic lane.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Stripe the existing 8-ft concrete path with a 4-inch broken yellow line along the center. Stripe the existing path from Sheridan Street to Thomas Road.
- Reconstruct existing curb ramps along the concrete path, at Yale Street and at Virginia Avenue, to meet ADA requirements.
- Remove existing luminaires and mast arms. Install new roadway lighting along 20<sup>th</sup> place between Oak Street and Sheridan Street. Install new roadway bollard lighting along the existing concrete path between Sheridan Street and Thomas Road. Lighting improvements include new conduit and conductors.

### 20<sup>th</sup> Street/Thomas Road Intersection

#### Alternative 1

- Restripe the existing free right turn on the southeast corner of the intersection to provide one free right turn lane rather than two.
- Install painted crosswalks at the free right turns on the southeast corner and northeast corner of the intersection.
- Install rapid rectangular flashing beacons at the proposed crosswalks at the free right turns on the southeast corner and the northeast corner of the intersection.
- Provide advanced warning signage on the northbound frontage road/20<sup>th</sup> Street to warn approaching traffic of the crosswalk at the free right on the southeast corner of the intersection.
- Provide advanced warning signage on westbound Thomas Road to warn approaching traffic of the crosswalk at the free right on the northeast corner of the intersection.

Figure 3 - Thomas Road Alternative 1

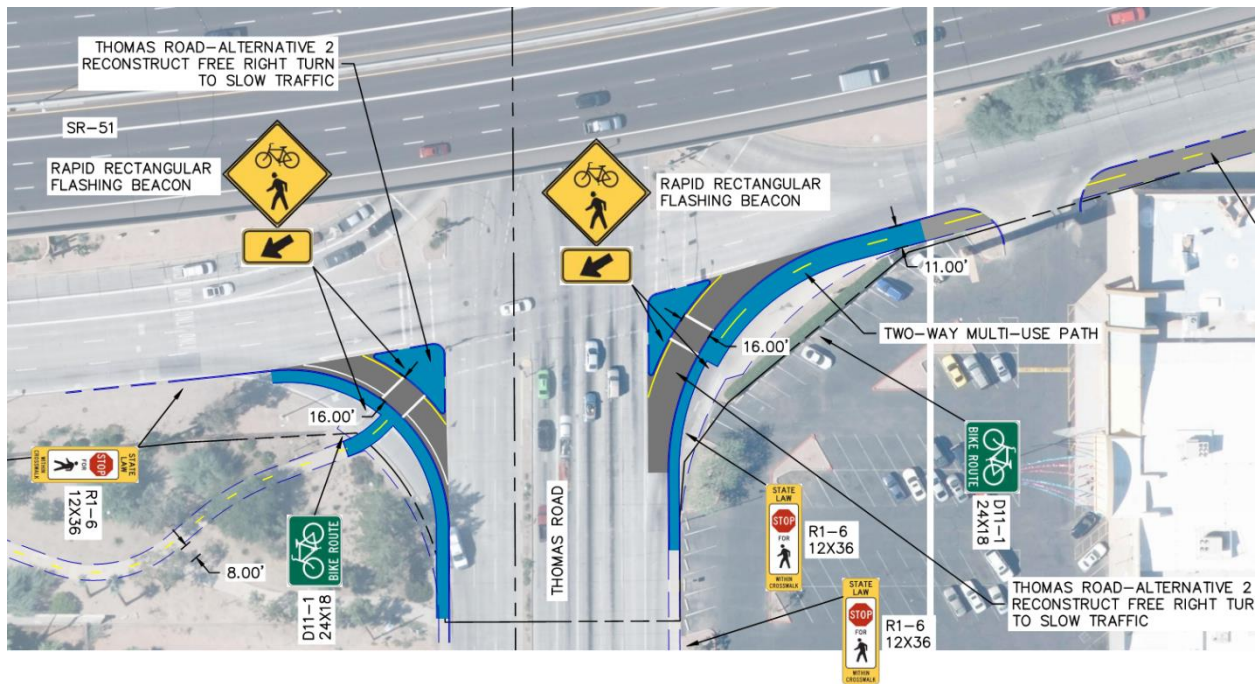


**20<sup>th</sup> Street/Thomas Road Intersection**

**Alternative 2**

- Reconstruct the free right turns, at both the southeast and northeast corners of the intersection, to reduce the curve radii in order to calm traffic making the free right turn. Includes removal and replacement of concrete curb, curb and gutter, sidewalk, and curb ramps.
- Install painted crosswalks at the free right turns on the southeast corner and northeast corner of the intersection.
- Install rapid rectangular flashing beacons at the proposed crosswalks at the free right turns on the southeast corner and the northeast corner of the intersection.
- Provide advanced warning signage on the northbound frontage road/20<sup>th</sup> Street to warn approaching traffic of the crosswalk at the free right on the southeast corner of the intersection.
- Provide advanced warning signage on westbound Thomas Road to warn approaching traffic of the crosswalk at the free right on the northeast corner of the intersection.
- Provide traffic signal improvements to function with the proposed intersection improvements.

**Figure 4 - Thomas Road Alternative 2**



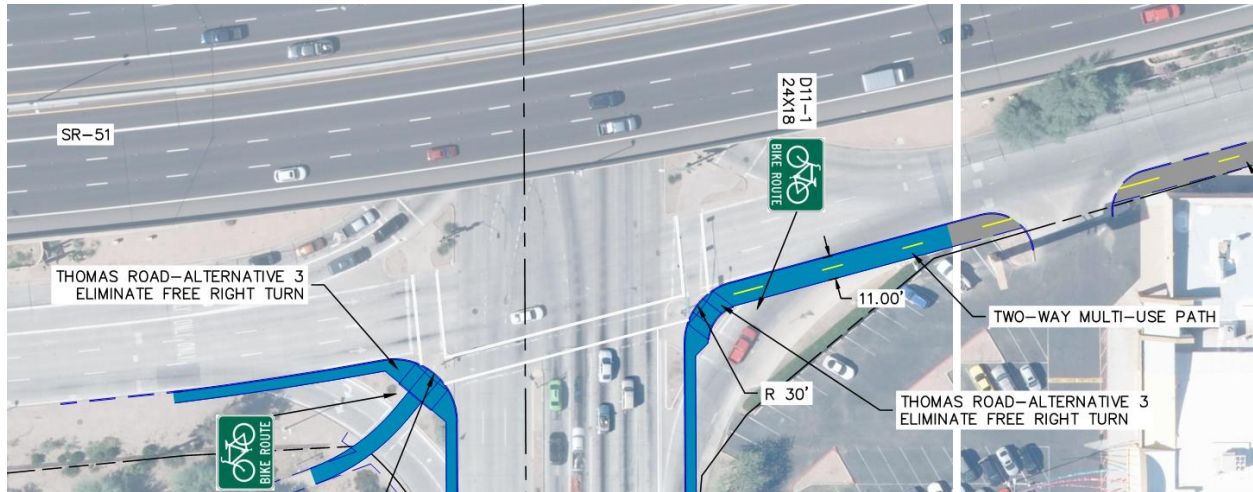


## 20<sup>th</sup> Street/Thomas Road Intersection

### Alternative 3

- Reconstruct the northeast corner and southeast corner of the intersection to eliminate the free-right turns. Includes removal and replacement of concrete curb, curb and gutter, sidewalk and curb ramps.
- Provide a dedicated right-turn lane on westbound Thomas Road.
- Provide traffic signal improvements to function with the proposed intersection improvements.

Figure 5 - Thomas Road Alternative 3



## 20<sup>th</sup> Street; Thomas Road to Grand Canal

### Alternative 1

- Stripe the existing concrete sidewalk between Thomas Road and Greenfield Road with a 4-inch broken yellow line to create a two-way multi-use path.
- Stripe 20<sup>th</sup> Street to provide a separated two-way cycle track on the east side of 20<sup>th</sup> Street.
- On-street parking will not be allowed on either side of the road.
- The proposed 20<sup>th</sup> Street typical section consists of a 10-ft two-way cycle track, a 3-ft buffer, and two 16-ft traffic lanes.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Provide a stamped asphalt crosswalk across Greenfield Road, and two stamped asphalt crosswalks across 20<sup>th</sup> Street on both sides of the Grand Canal.
- Install curb ramps on each side of 20<sup>th</sup> Street, and on each side of the Grand Canal, four curb ramps total.
- Existing lighting will remain in place between Thomas Road and Greenfield Road. Install new roadway lighting, including new conduit and conductors, between Greenfield Road and the Grand Canal.

### Alternative 2

- Stripe the existing concrete sidewalk between Thomas Road and Greenfield Road with a 4-inch broken yellow line to create a two-way multi-use path.
- Stripe 20<sup>th</sup> Street to provide a separated two-way cycle track on the east side of 20<sup>th</sup> Street.
- On-street parking will not be allowed on either side of the road.
- The proposed 20<sup>th</sup> Street typical section consists of a 10-ft two-way cycle track, a 3-ft buffer, and two 16-ft traffic lanes.
- Include flexible delineators to provide vertical separation between the traffic lanes and the two-way cycle track.
- Include green pavement marking in selected locations to increase bicycle lane visibility.
- Reconstruct the raised island at the 20<sup>th</sup> Street/Greenfield Road intersection to provide additional spacing between the raised island and the proposed two-way cycle track.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Provide a stamped asphalt crosswalk across Greenfield Road, and two stamped asphalt crosswalks across 20<sup>th</sup> Street on both sides of the Grand Canal.
- Install curb ramps on each side of 20<sup>th</sup> Street, and on each side of the Grand Canal, four curb ramps total.
- Existing lighting will remain in place between Thomas Road and Greenfield Road. Install new roadway lighting, including new conduit and conductors, between Greenfield Road and the Grand Canal.

## 20<sup>th</sup> Street; Thomas Road to Grand Canal

### **Alternative 3**

- Stripe the existing concrete sidewalk between Thomas Road and Greenfield Road with a 4-inch broken yellow line to create a two-way multi-use path.
- Remove the existing concrete curb and gutter and concrete sidewalk between Greenfield Road and the Grand Canal.
- Install new concrete curb and gutter and 12-foot wide sidewalk. Sidewalk improvements include a new curb ramp at Greenfield Road, and four new curb ramps on both sides of 20<sup>th</sup> Street and on each side of the Grand Canal.
- Stripe the new 12-foot wide sidewalk with a 4-inch broken yellow line to create a two-way multi-use path between Greenfield Road and the Grand Canal.
- On-street parking will not be allowed on either side of the road.
- The proposed 20<sup>th</sup> Street typical section consists of a two traffic lanes, one in each direction.
- Provide appropriate signage and pavement markings. Signage includes way-finding signs, bike lane signs, no parking signs, etc.
- Provide a stamped asphalt crosswalk across Greenfield Road, and two stamped asphalt crosswalks across 20<sup>th</sup> Street on both sides of the Grand Canal.
- Install curb ramps on each side of 20<sup>th</sup> Street, and on each side of the Grand Canal, four curb ramps total.
- Existing lighting will remain in place between Thomas Road and Greenfield Road. Install new roadway lighting, including new conduit and conductors, between Greenfield Road and the Grand Canal.



## 4.2 Environmental Overview

Improvements associated with the various alternatives will be constructed within areas already disturbed due to existing roadway, drainage and landscape features. Although no significant environmental impacts associated with the proposed improvements are anticipated, a thorough environmental assessment will be conducted during the design phase of the project to identify the environmental mitigation measures to be followed during construction.

## 4.3 Construction Contract Method

The project will utilize the design-bid-build contract method. The contract will be awarded to the lowest responsive bid.

## 4.4 Geotechnical and Drainage Requirements

A geotechnical investigation of existing conditions will be necessary in areas of where the asphalt pavement is widened and/or reconstruction and in areas where low impact drainage features such as bio-swales and pervious pavement are to be constructed.

Drainage improvements will comply with City of Phoenix design standards. The designer will evaluate low impact drainage alternatives such as bio-swales and pervious concrete.

## 4.5 Critical Outside Agency/Entity Involvement

The improvements will be constructed within the City of Phoenix right-of-way. The City of Phoenix maintenance group and traffic group will need to be involved throughout the final design and construction process. Coordination will be required with property owners along the project for the acquisition of right of way and easements. Public involvement will also be required with the adjacent property owners during construction. Utility impacts are expected to be minimal, but coordination will also be required with utility owners along the corridor throughout the final design and construction process. The City of Phoenix will need to coordinate with ADOT for any potential improvements with ADOT right of way.

## 4.6 Right of Way Requirements

Right of way widths vary throughout the project corridor. The intent of the project is to develop bike lane alternatives that limit proposed roadway, drainage, landscape and street lighting improvements to within the existing street right of way. Exceptions include the need to acquire additional right of way to construct drainage, landscape and sidewalk improvements on each side of Oak Street between 15<sup>th</sup> Street and 16<sup>th</sup> Street for Alternatives 3A and 3B. In addition, temporary construction easements may be necessary for various Alternatives that require the reconstruction of curb ramps to meet current ADA requirements.

## 4.7 Seasonal Considerations

Seasonal restrictions are not expected.

## 4.8 Traffic Requirements

A traffic control plan will be required during the improvements. Traffic restrictions are expected to be minimal. Pedestrian traffic control plans will be needed as well during sidewalk construction.

## 4.9 Design Guidelines

This project will be designed and constructed in accordance with the most recent editions of City of Phoenix Street Planning and Design Guidelines, the City of Phoenix Standard Specifications and Details for Public Works Construction, the City of Phoenix Comprehensive Bicycle Master Plan, the AASHTO Guide for the Development of Bicycle Facilities, and the NACTO Urban Bikeway Design Guide.

The current City of Phoenix document titled *City of Phoenix Streetlighting Layout Guidelines, March 2013*, on page 34 shows typical collector lighting spaced at 200 feet to 250 feet. The guidelines, on page 7, also specifies a 106 Watt LED luminaire. The proposed roadway lighting for the Oak Street corridor uses a closer spacing at a lower wattage so the resulting lighting levels would be comparable

**5.0 OPINION OF PROBABLE COST**

Opinions of probable costs for the various alternative in each segment are shown in the following table. All opinions of cost are preliminary and based on conceptual level quantity take offs. Quantities and unit-cost assumptions will change during final design. Detailed costs for each alternatives are found in the appendix.

**Figure 6 - Project Costs**

ALTERNATIVE	DESCRIPTION	SEGMENT COST
<b>OAK STREET; 3RD STREET TO 7TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide bike lanes and 10-ft travel lanes.</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Provide low maintenance landscaping along south side of Oak Street</li> </ul>	\$168,190
2	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide two-way cycle track on north side of Oak Street and 10-ft travel lanes.</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Provide low maintenance landscaping along south side of Oak Street</li> </ul>	\$169,090
<b>OAK STREET / 7TH STREET INTERSECTION</b>		
1	<ul style="list-style-type: none"> <li>Modify existing HAWK signal for bicycle use</li> <li>Provide new pedestrian push buttons to be used by bicyclists.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Provide stamped asphalt crosswalks.</li> </ul>	\$67,540
2A	<ul style="list-style-type: none"> <li>Provide a TOUCAN type signal modified for use with the existing HAWK signal.</li> <li>Provide raised islands, and new pedestrian push buttons to be used by bicyclists.</li> <li>Provide stamped asphalt crosswalks.</li> <li>TOUCAN signal will restrict through traffic on Oak Street. Intersection will become a right-in/right-out.</li> </ul>	\$137,660
2B	<ul style="list-style-type: none"> <li>Replace existing HAWK signal with a full traffic signal.</li> <li>Provide a TOUCAN type signal.</li> <li>Provide raised islands, and new pedestrian push buttons to be used by bicyclists.</li> <li>Provide bicycle detection.</li> <li>TOUCAN signal will restrict through traffic on Oak Street. Intersection will become a right-in/right-out.</li> </ul>	\$452,420



ALTERNATIVE	DESCRIPTION	SEGMENT COST
<b>OAK STREET; 7TH STREET TO 10TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide bike lanes and 10-ft travel lanes.</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Remove and replace existing sidewalk on south side of Oak Street, including curb ramps.</li> <li>Provide low maintenance landscaping where necessary.</li> </ul>	\$308,970
2	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide two-way bike lane on north side of Oak Street and 10-ft travel lanes.</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Remove and replace existing sidewalk on south side of Oak Street, including curb ramps.</li> <li>Provide low maintenance landscaping where necessary.</li> </ul>	\$335,240
<b>OAK STREET; 10TH STREET TO DAYTON STREET</b>		
1	<ul style="list-style-type: none"> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> </ul>	\$41,210
2A	<ul style="list-style-type: none"> <li>Widen and reconstruct existing road, and install new curb &amp; gutter and sidewalk.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Connect to existing drainage system.</li> </ul>	\$177,670
2B	<ul style="list-style-type: none"> <li>Widen and reconstruct existing road, and install new curb &amp; gutter and sidewalk.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Use low impact drainage design ideas such as pervious concrete and bio-swales</li> </ul>	\$208,560
<b>OAK STREET; DAYTON STREET TO 12TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide bike lanes and 10-ft travel lanes.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Provide raised islands at traffic circle to calm traffic.</li> <li>Provide additional striping and signage to improve bicycle and pedestrian safety at the traffic circle.</li> <li>Provide stamped asphalt crosswalks.</li> </ul>	\$175,500
2	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide two-way bike lane on north side of Oak Street and 10-ft travel lanes.</li> <li>Widen sidewalk on north side of traffic circle, construct ramps for bicycles.</li> <li>Provide raised islands at traffic circle to calm traffic.</li> <li>Provide additional striping and signage to improve bicycle and pedestrian safety at the traffic circle.</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>Provide stamped asphalt crosswalks.</li> </ul>	\$273,840

ALTERNATIVE	DESCRIPTION	SEGMENT COST
<b>OAK STREET; 12TH STREET TO 14TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide bike lanes and 10-ft travel lanes.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> </ul>	\$137,790
2	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide two-way bike lane on north side of Oak Street and 10-ft travel lanes.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> </ul>	\$159,670
<b>OAK STREET / 14TH STREET INTERSECTION</b>		
1	<ul style="list-style-type: none"> <li>Install speed table at intersection to calm traffic on 14th Street, includes utility adjustments and drainage improvements.</li> <li>Install stop signs on 14th Street to create 4-way stop controlled intersection.</li> <li>Provide stamped asphalt crosswalks.</li> </ul>	\$73,570
2	<ul style="list-style-type: none"> <li>Install speed table at intersection to calm traffic on 14th Street, includes utility adjustments and drainage improvements.</li> <li>Install rapid rectangular flashing beacons and crosswalk on 14th Street to warn traffic of pedestrians.</li> <li>Provide stamped asphalt crosswalks.</li> </ul>	\$82,870
<b>OAK STREET; 14TH STREET TO 15TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Install speed humps to calm traffic on Oak Street</li> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> <li>Provide low maintenance landscaping along both sides of Oak Street.</li> </ul>	\$93,560
2A	<ul style="list-style-type: none"> <li>Mill and overlay existing Oak Street pavement, apply a stamped pattern along the center of the road.</li> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> <li>Provide low maintenance landscaping along both sides of Oak Street.</li> </ul>	\$201,760
2B	<ul style="list-style-type: none"> <li>Reconstruct Oak Street pavement, install pervious concrete with a stamped pattern along the center of the road.</li> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> <li>Provide low maintenance landscaping along both sides of Oak Street.</li> </ul>	\$325,830
3	<ul style="list-style-type: none"> <li>Install wayfinding signs to guide bicycles to use Hoover Ave rather than Oak Street between 14th Street and 15th Street</li> </ul>	\$23,640

ALTERNATIVE	DESCRIPTION	SEGMENT COST
<b>OAK STREET; 15TH STREET TO 16TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> <li>Reconstruct curb ramps at 16<sup>th</sup> Street to meet ADA requirements.</li> </ul>	\$76,180
2A	<ul style="list-style-type: none"> <li>Mill and overlay existing Oak Street pavement, install a stamped pattern along the center of the road.</li> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> <li>Reconstruct curb ramps at 16<sup>th</sup> Street to meet ADA requirements.</li> </ul>	\$290,230
2B	<ul style="list-style-type: none"> <li>Replace existing pavement with pervious concrete, install a stamped pattern along the center of the roadway, shoulders are to be smooth for bicycles</li> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> <li>Reconstruct curb ramps at 16<sup>th</sup> Street to meet ADA requirements.</li> </ul>	\$472,570
3A	<ul style="list-style-type: none"> <li>Widen and reconstruct existing road, and install new curb &amp; gutter and sidewalk.</li> <li>16-ft of additional right of way to be acquired</li> <li>Connect to existing drainage system.</li> <li>Provide low maintenance landscaping along both sides of Oak Street.</li> </ul>	\$385,770
3B	<ul style="list-style-type: none"> <li>Widen and reconstruct existing road, and install new curb &amp; gutter and sidewalk.</li> <li>16-ft of additional right of way to be acquired</li> <li>Use low impact drainage design ideas such as pervious concrete and bio-swales.</li> <li>Provide low maintenance landscaping along both sides of Oak Street.</li> </ul>	\$551,930
<b>OAK STREET; 16TH STREET TO 18TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide bike lanes and 10-ft travel lanes.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> </ul>	\$133,830
<b>OAK STREET; 18TH STREET TO 20TH STREET</b>		
1	<ul style="list-style-type: none"> <li>Restripe Oak Street to provide bike lanes and 10-ft travel lanes.</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Provide low maintenance landscaping where necessary</li> </ul>	\$146,160



ALTERNATIVE	DESCRIPTION	SEGMENT COST
<b>OAK STREET / 20TH STREET INTERSECTION</b>		
1	<ul style="list-style-type: none"> <li>Install speed table at intersection to calm traffic on 20th Street, includes utility adjustments and drainage improvements.</li> <li>Install stop signs on 20th Street to create 4-way stop controlled intersection.</li> <li>Provide stamped asphalt crosswalks.</li> </ul>	\$73,860
2	<ul style="list-style-type: none"> <li>Install speed table at intersection to calm traffic on 20th Street, includes utility adjustments and drainage improvements</li> <li>Install rapid rectangular flashing beacons and crosswalk on 20th Street to warn traffic of pedestrians.</li> <li>Provide stamped asphalt crosswalks.</li> </ul>	\$85,350
<b>20TH PLACE; OAK STREET TO THOMAS ROAD</b>		
1	<ul style="list-style-type: none"> <li>Add shared lane markings and signage to alert drivers that bicyclists may use the full lane.</li> <li>Provide signage to improve bicycle safety, and wayfinding.</li> <li>Reconstruct existing curb ramps along the existing multi-use path to meet ADA guidelines</li> </ul>	\$277,420
2	<ul style="list-style-type: none"> <li>Restripe 20th Place to provide two-way bike lane on west side of 20th Place</li> <li>Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>Convert 20th Place, between Oak Street and Sheridan Street, to a one-way street</li> <li>Provide signage to improve bicycle safety, and wayfinding</li> <li>Reconstruct existing curb ramps along the existing multi-use path to meet ADA guidelines</li> </ul>	\$297,160
<b>THOMAS ROAD INTERSECTION</b>		
1	<ul style="list-style-type: none"> <li>Restripe free right turns to provide only one turn lane</li> <li>Provide rapid rectangular flashing beacons at crosswalks and additional signage to provide warning to traffic that pedestrians are in crosswalk</li> </ul>	\$24,310
2	<ul style="list-style-type: none"> <li>Reconstruct free right turns to reduce vehicle speeds</li> <li>Provide rapid rectangular flashing beacons at crosswalks and additional signage to provide warning to traffic that pedestrians are in crosswalk.</li> <li>Modify traffic signal for intersection improvements.</li> </ul>	\$214,400
3	<ul style="list-style-type: none"> <li>Reconstruct intersection to eliminate free right turns</li> <li>Reconstruct traffic signal</li> </ul>	\$479,520

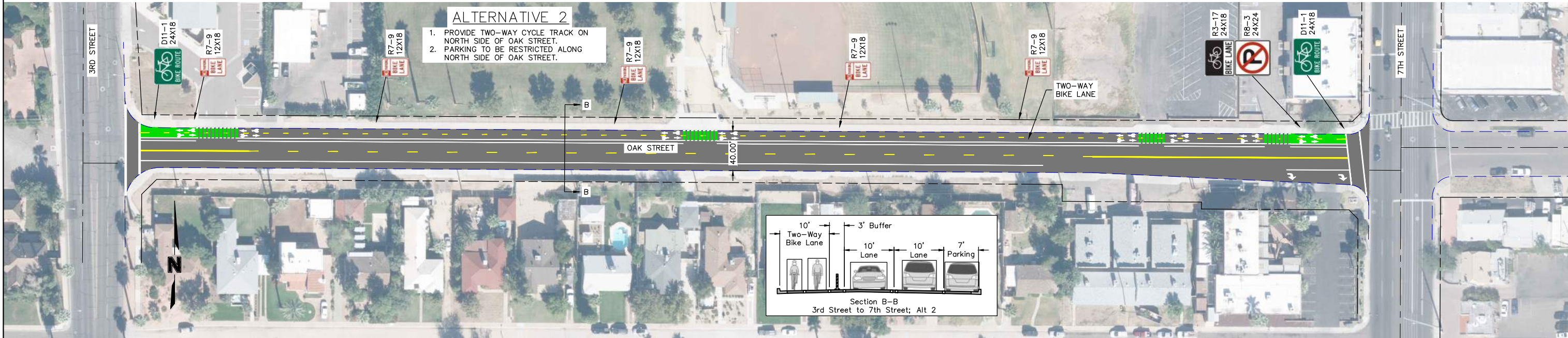
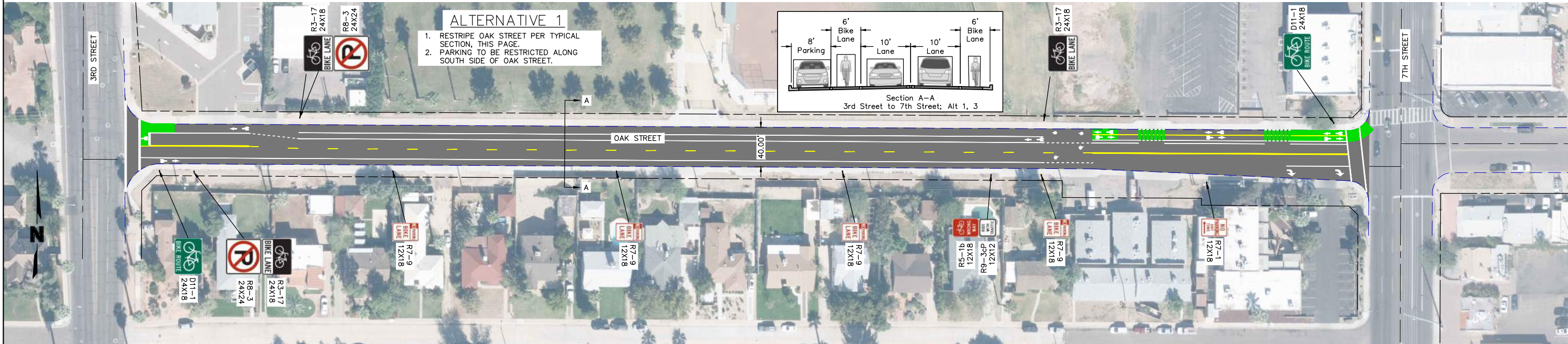
ALTERNATIVE	DESCRIPTION	SEGMENT COST
<b>20TH STREET; THOMAS ROAD TO GRAND CANAL</b>		
1	<ul style="list-style-type: none"> <li>• Add striping to convert existing sidewalk to multi-use path.</li> <li>• Reconfigure striping on 20th Street to provide a two-way bike lane.</li> <li>• Provide signage to improve bicycle safety, and wayfinding.</li> <li>• Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>• Provide stamped asphalt crosswalks at Grand Canal to access both sides of the canal.</li> <li>• Install curb ramps at Grand Canal.</li> </ul>	\$157,450
2	<ul style="list-style-type: none"> <li>• Add striping to convert existing sidewalk to multi-use path.</li> <li>• Reconfigure striping on 20th Street to provide a two-way bike lane</li> <li>• Provide signage to improve bicycle safety, and wayfinding.</li> <li>• Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>• Provide stamped asphalt crosswalks at Grand Canal to access both sides of the canal.</li> <li>• Reconstruct existing raised island to provide a wider traffic lane at two-way bike lane.</li> <li>• Install curb ramps at Grand Canal.</li> </ul>	\$188,560
3	<ul style="list-style-type: none"> <li>• Add striping to convert existing sidewalk to multi-use path.</li> <li>• Reconstruct existing 8-ft sidewalk to provide a 12-ft wide multi-use path.</li> <li>• Provide signage to improve bicycle safety, and wayfinding.</li> <li>• Provide pavement messages, green pavement markings, and flexible delineators.</li> <li>• Provide stamped asphalt crosswalks at Grand Canal to access both sides of the canal.</li> </ul>	\$320,690



# APPENDIX 1 – EXHIBITS

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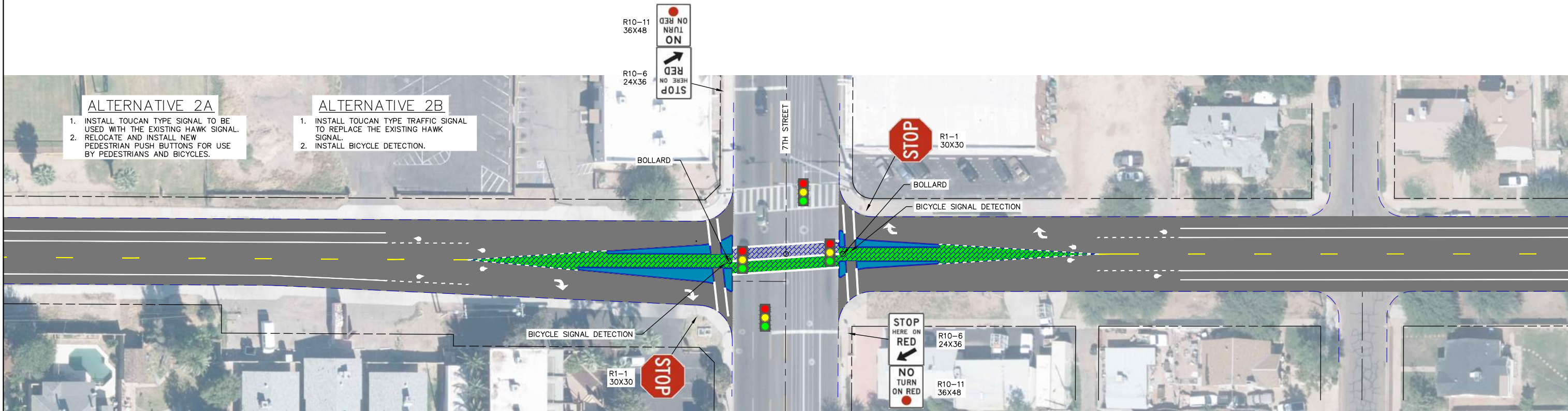
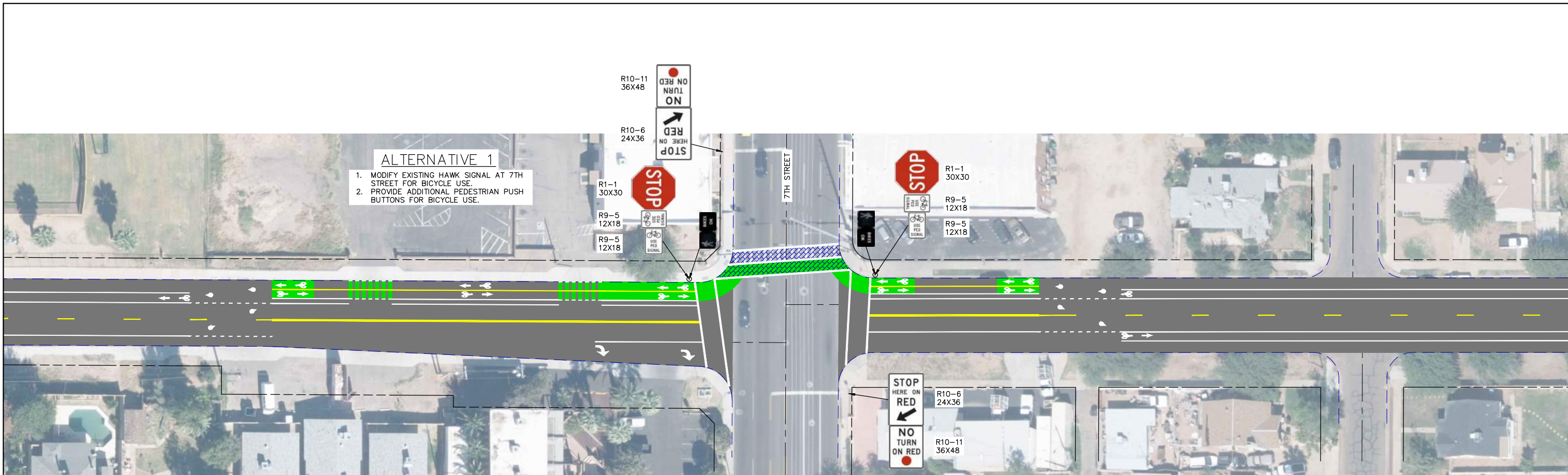
3RD STREET TO 7TH STREET	
OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY	
PHOENIX, AZ	2016

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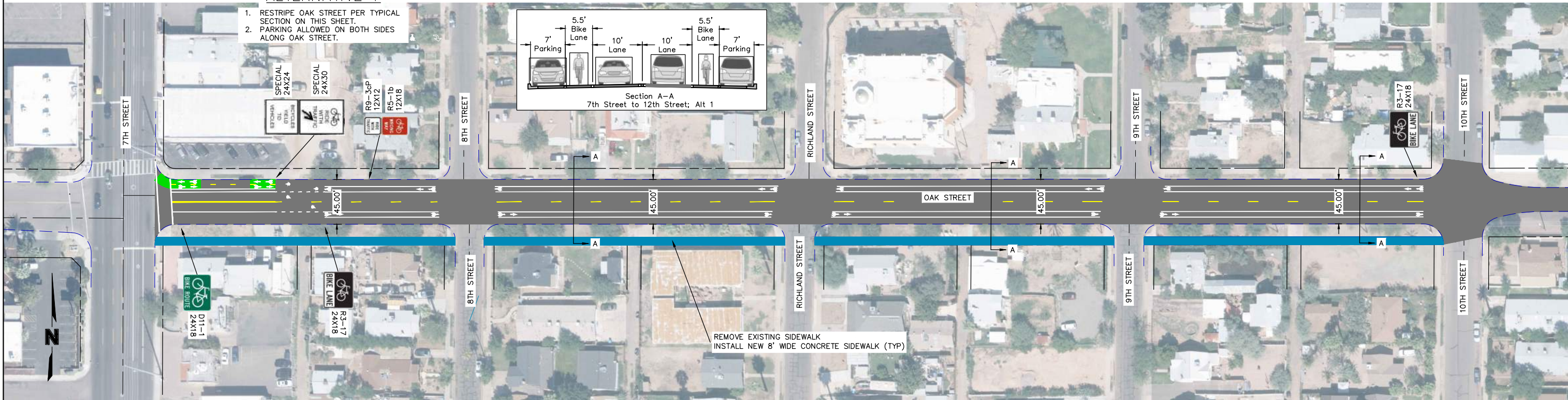






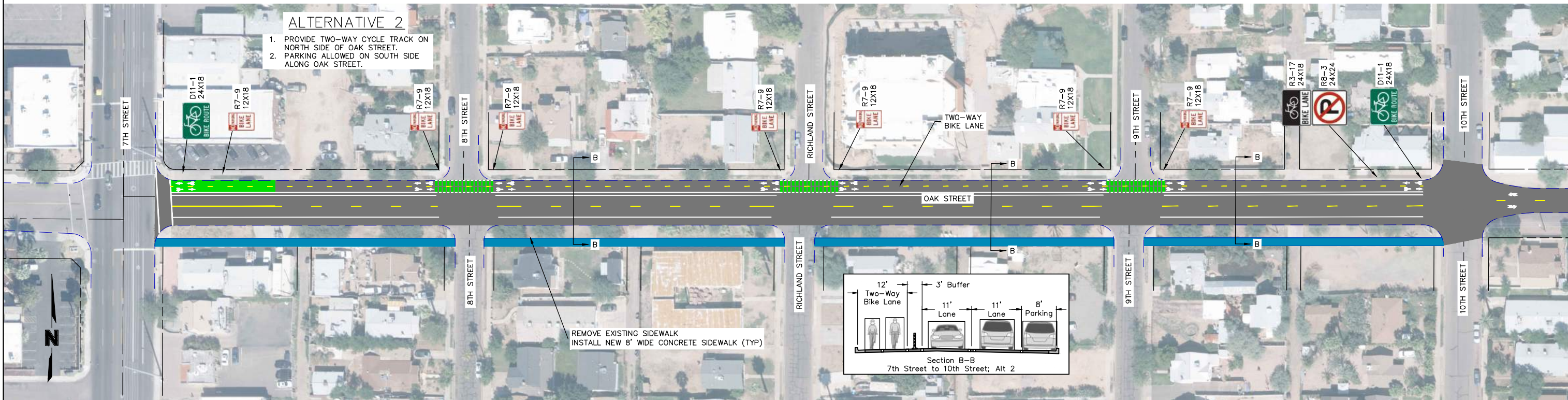
**ALTERNATIVE 1**

1. RESTRIPE OAK STREET PER TYPICAL SECTION ON THIS SHEET.
2. PARKING ALLOWED ON BOTH SIDES ALONG OAK STREET.



**ALTERNATIVE 2**

1. PROVIDE TWO-WAY CYCLE TRACK ON NORTH SIDE OF OAK STREET.
2. PARKING ALLOWED ON SOUTH SIDE ALONG OAK STREET.



7TH STREET TO 10TH STREET

OAK STREET BICYCLE CORRIDOR  
IMPROVEMENT STUDY

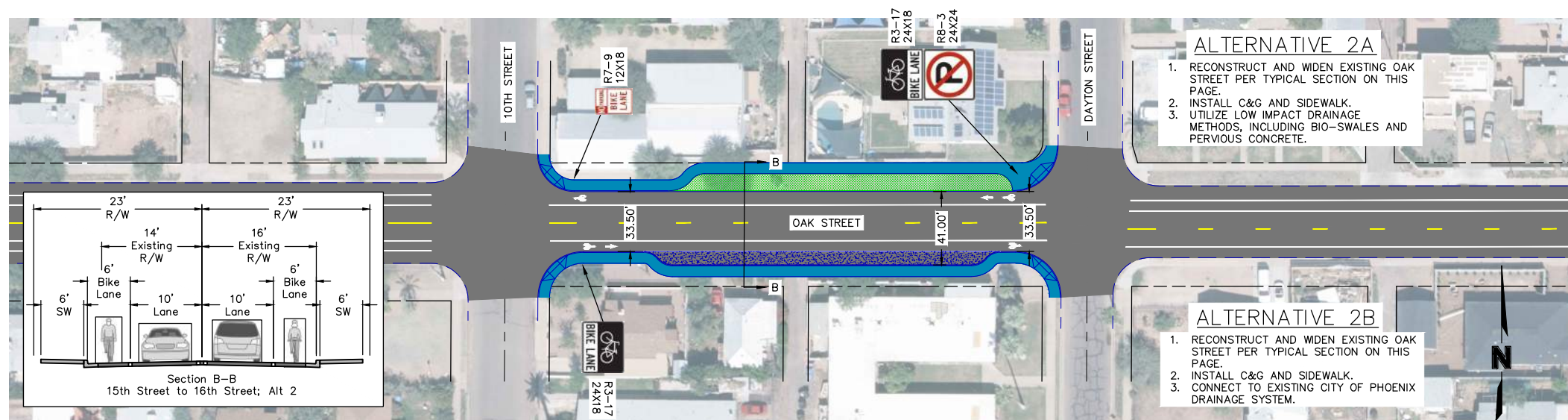
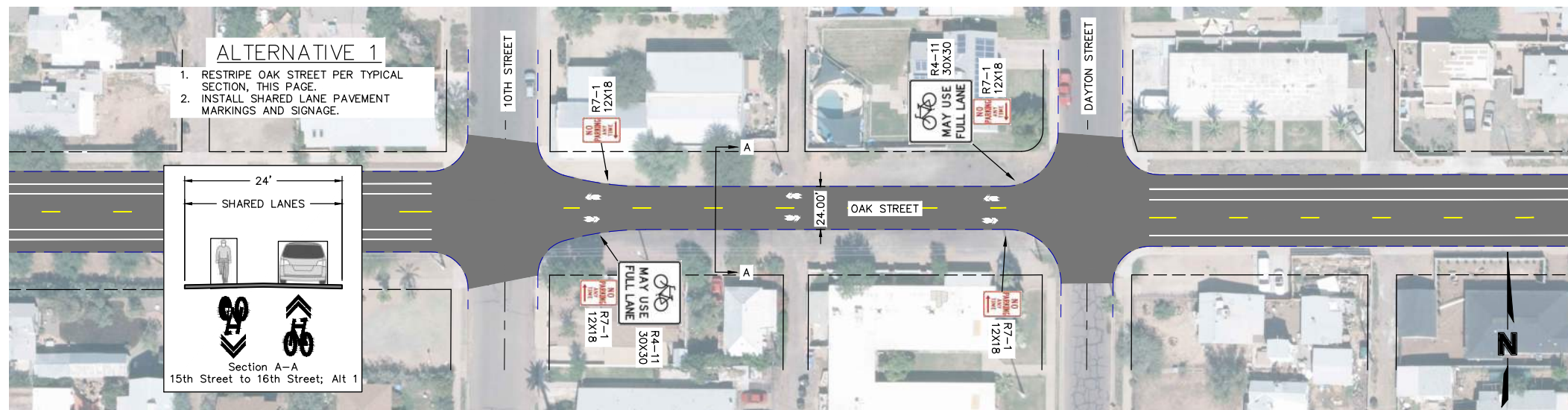
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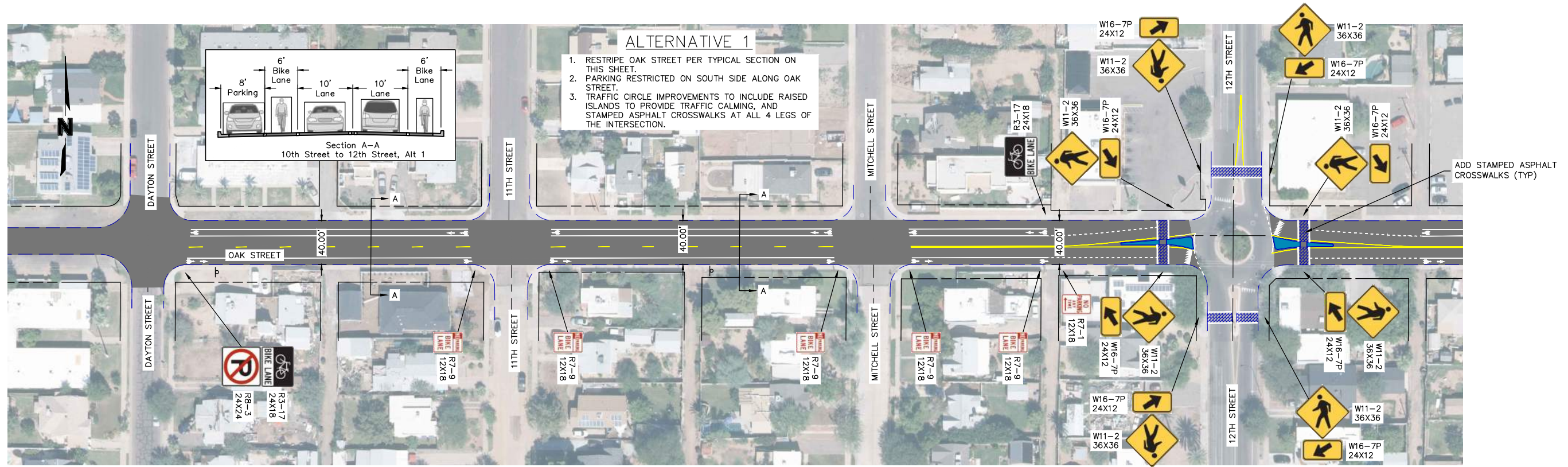
10TH STREET TO DAYTON STREET	
OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY	
PHOENIX, AZ	2016



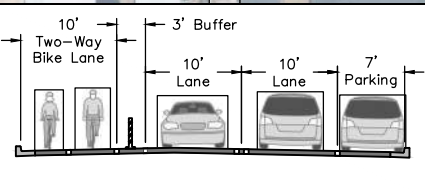
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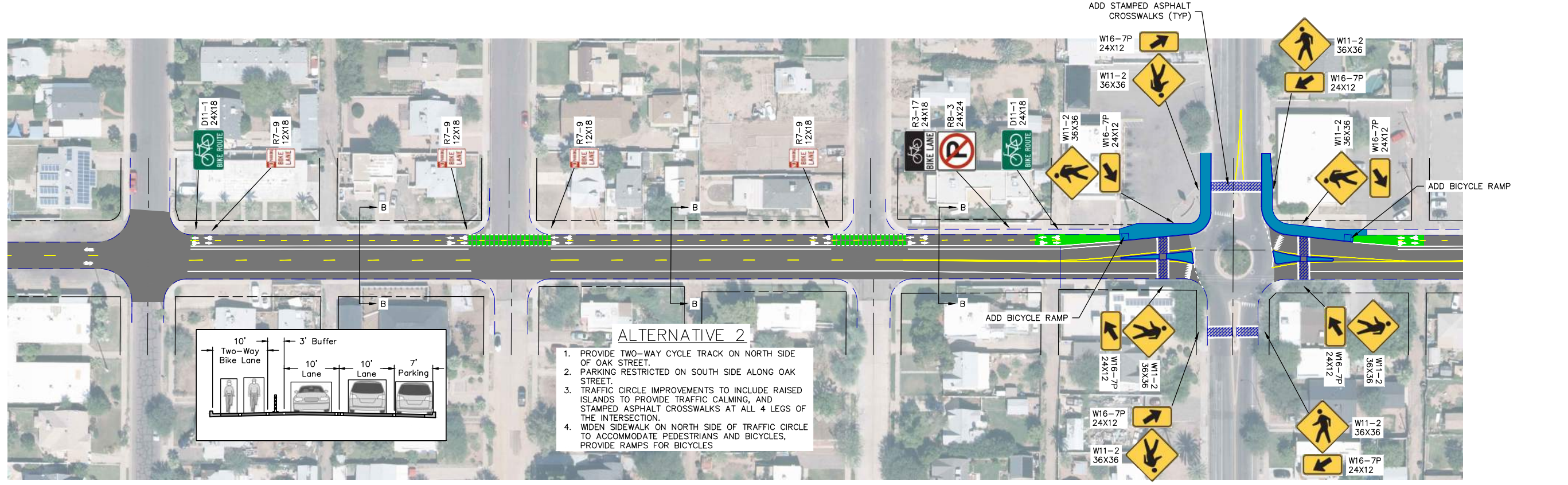




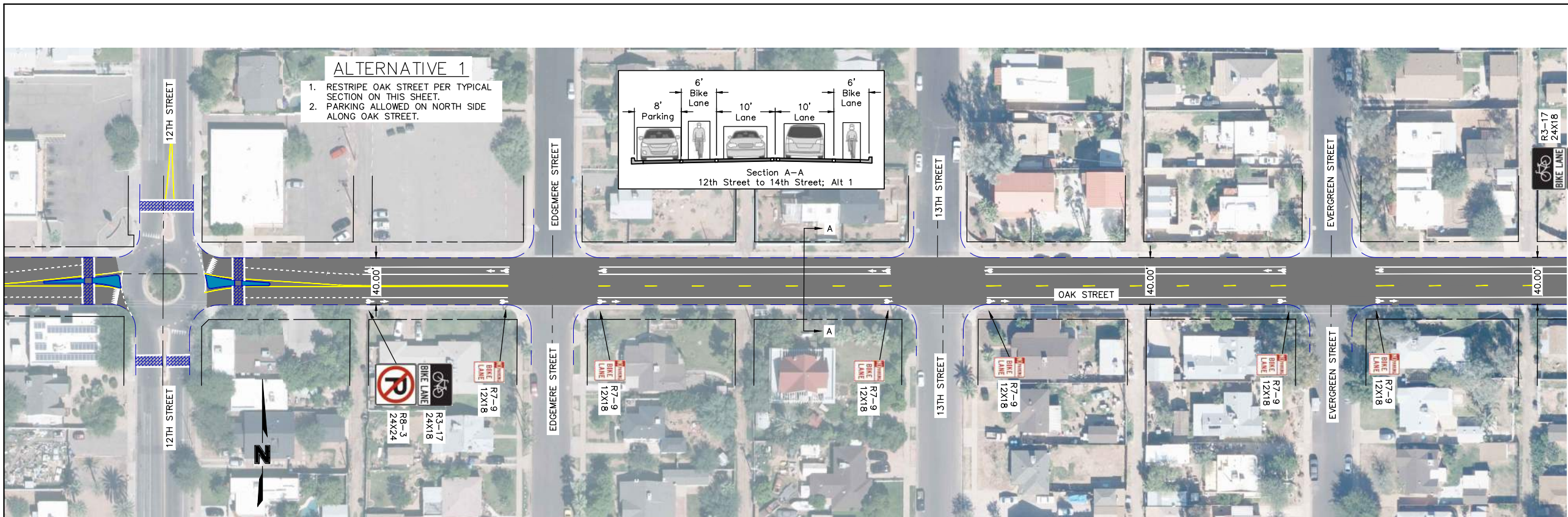
- ALTERNATIVE 1**
1. RESTRIPE OAK STREET PER TYPICAL SECTION ON THIS SHEET.
  2. PARKING RESTRICTED ON SOUTH SIDE ALONG OAK STREET.
  3. TRAFFIC CIRCLE IMPROVEMENTS TO INCLUDE RAISED ISLANDS TO PROVIDE TRAFFIC CALMING, AND STAMPED ASPHALT CROSSWALKS AT ALL 4 LEGS OF THE INTERSECTION.



- ALTERNATIVE 2**
1. PROVIDE TWO-WAY CYCLE TRACK ON NORTH SIDE OF OAK STREET.
  2. PARKING RESTRICTED ON SOUTH SIDE ALONG OAK STREET.
  3. TRAFFIC CIRCLE IMPROVEMENTS TO INCLUDE RAISED ISLANDS TO PROVIDE TRAFFIC CALMING, AND STAMPED ASPHALT CROSSWALKS AT ALL 4 LEGS OF THE INTERSECTION.
  4. WIDEN SIDEWALK ON NORTH SIDE OF TRAFFIC CIRCLE TO ACCOMMODATE PEDESTRIANS AND BICYCLES, PROVIDE RAMP FOR BICYCLES

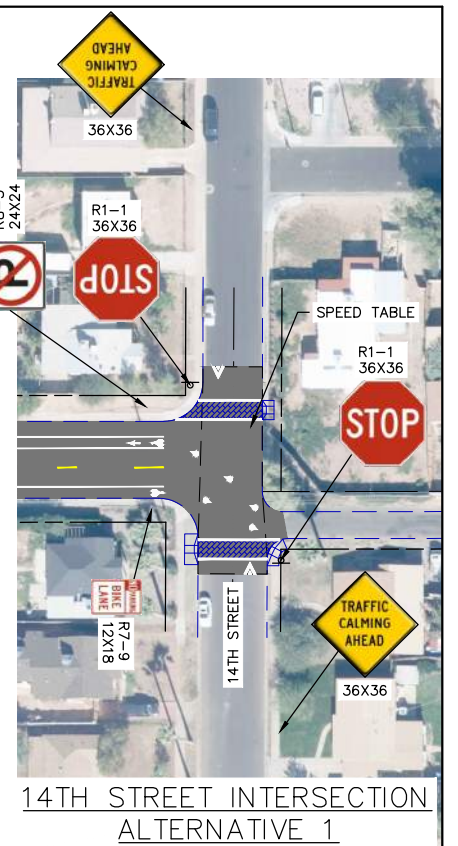
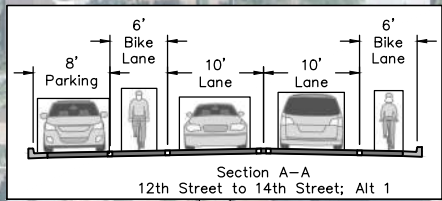






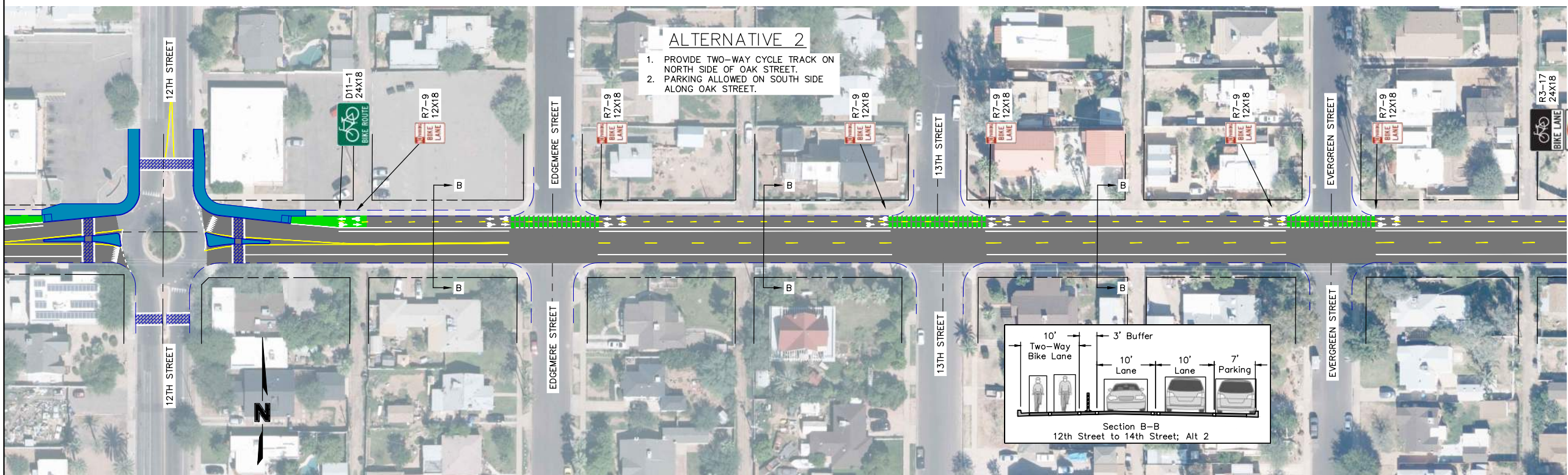
**ALTERNATIVE 1**

1. RESTRIPE OAK STREET PER TYPICAL SECTION ON THIS SHEET.
2. PARKING ALLOWED ON NORTH SIDE ALONG OAK STREET.



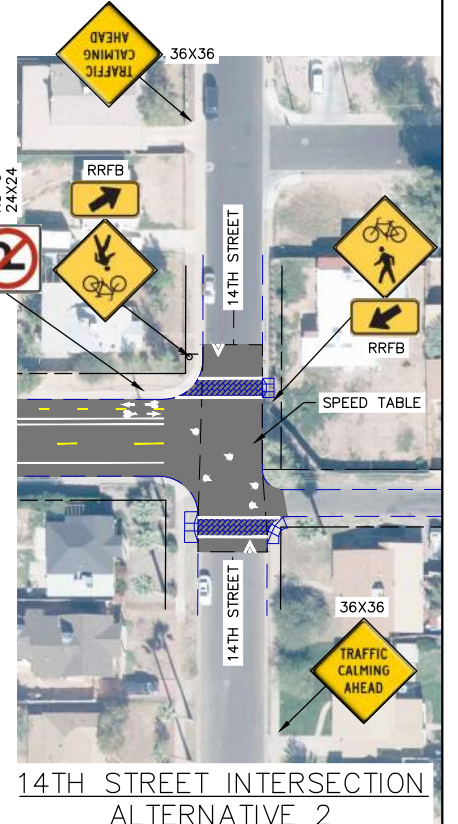
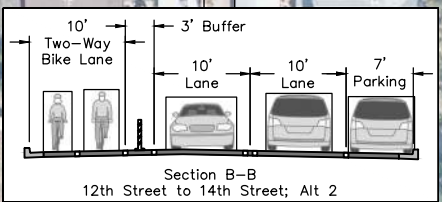
**14TH STREET INTERSECTION ALTERNATIVE 1**

1. INSTALL SPEED TABLE ON 14TH STREET.
2. INSTALL STOP SIGNS ON 14TH STREET TO PROVIDE 4-WAY STOP.



**ALTERNATIVE 2**

1. PROVIDE TWO-WAY CYCLE TRACK ON NORTH SIDE OF OAK STREET.
2. PARKING ALLOWED ON SOUTH SIDE ALONG OAK STREET.



**14TH STREET INTERSECTION ALTERNATIVE 2**

1. INSTALL SPEED TABLE ON 14TH STREET.
2. INSTALL RAPID RECTANGULAR FLASHING BEACON ON 14TH STREET.

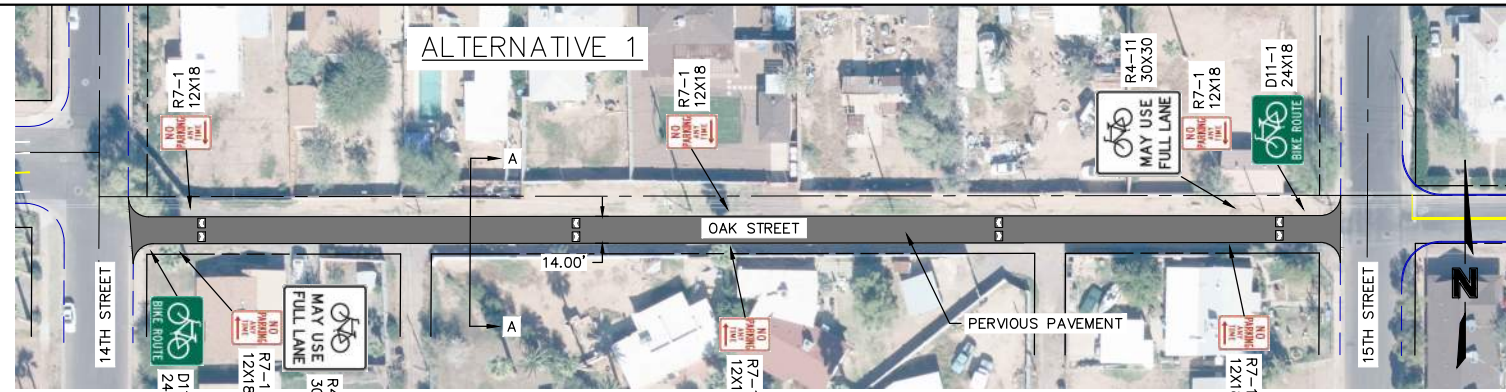
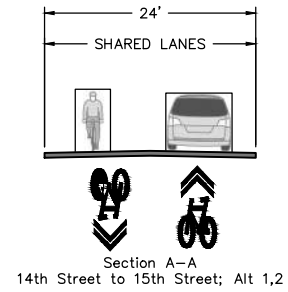
12TH STREET TO 14TH STREET	
OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY	
PHOENIX, AZ	2016

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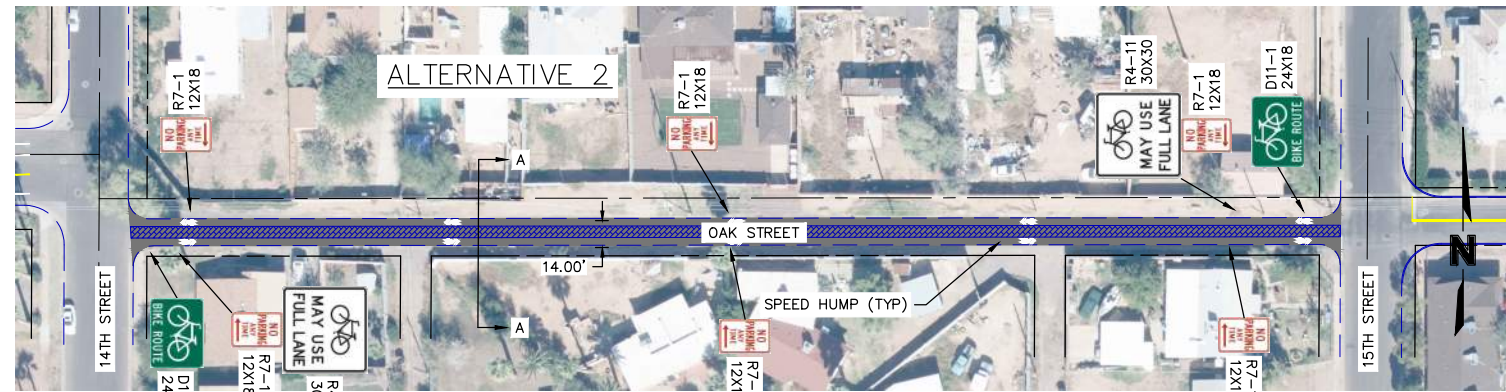
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**ALTERNATIVE 1**

1. REHAB EXISTING OAK STREET PAVEMENT.
2. INSTALL SPEED HUMPS TO CALM TRAFFIC.
3. INSTALL SHARED LANE MARKINGS.



**ALTERNATIVE 2A**

1. RECONSTRUCT OAK STREET PAVEMENT, APPLY STAMPED PATTERN ALONG CENTER OF ROAD.
2. INSTALL SHARED LANE MARKINGS.

**ALTERNATIVE 2B**

1. RECONSTRUCT OAK STREET PAVEMENT, PROVIDE PERVIOUS CONCRETE, APPLY STAMPED PATTERN ALONG CENTER OF ROAD.
2. INSTALL SHARED LANE MARKINGS.



**ALTERNATIVE 3**

1. PROVIDE WAY-FINDING SIGNING TO DIVERT BICYCLES TO USE HOOVER AVENUE AS THE BICYCLE CORRIDOR BETWEEN 14TH STREET AND 15TH STREET.

14TH STREET TO 15TH STREET

OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

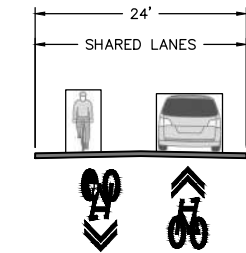
PHOENIX, AZ

2016

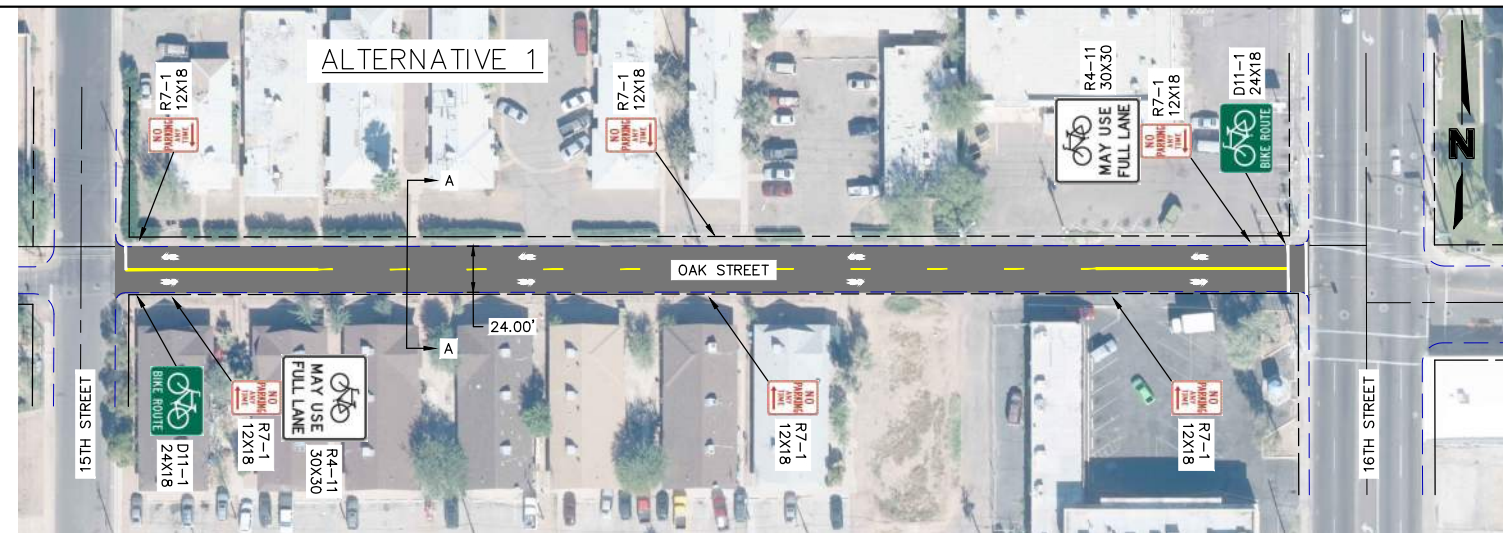


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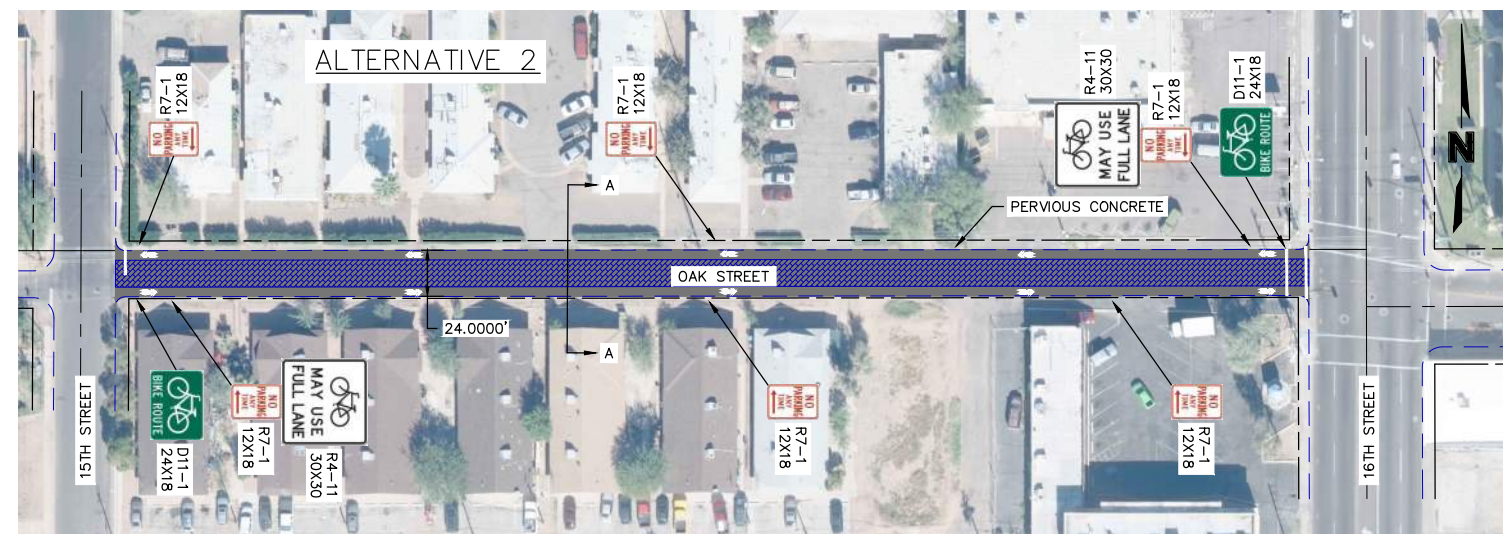


Section A-A  
15th Street to 16th Street; Alt 1



### ALTERNATIVE 1

1. REHAB EXISTING PAVEMENT.
2. INSTALL SHARED LANE MARKINGS.
3. RESTRICT PARKING ALONG BOTH SIDES OF OAK STREET

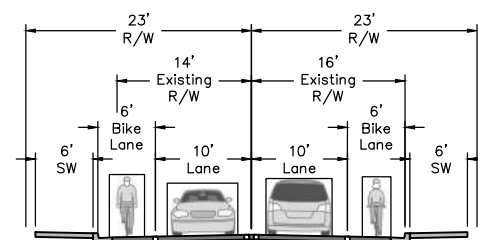


### ALTERNATIVE 2A

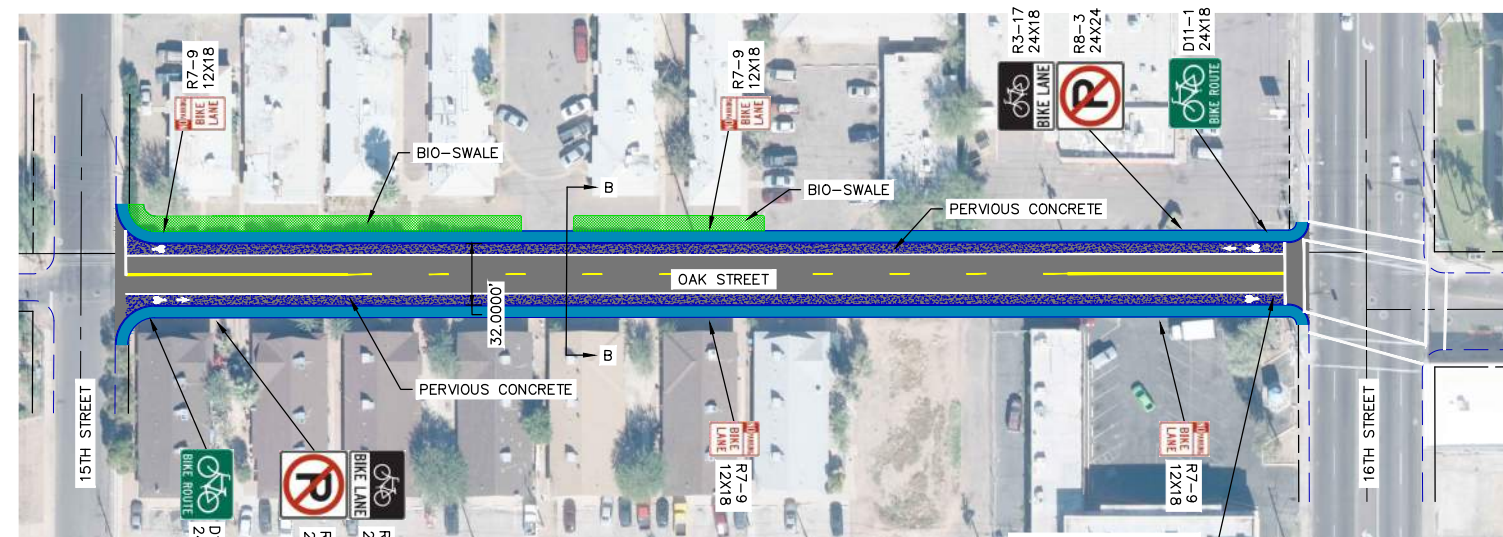
1. REHAB EXISTING PAVEMENT.
2. APPLY STAMPED PATTERN ALONG CENTER OF THE ROADWAY.
3. INSTALL SHARED LANE MARKINGS.
4. RESTRICT PARKING ALONG BOTH SIDES OF OAK STREET

### ALTERNATIVE 2B

1. REPLACE EXISTING PAVEMENT WITH PERVIOUS CONCRETE.
2. UTILIZE LOW IMPACT DRAINAGE METHODS.
3. APPLY STAMPED PATTERN ALONG CENTER OF THE ROADWAY.
4. INSTALL SHARED LANE MARKINGS.
5. RESTRICT PARKING ALONG BOTH SIDES OF OAK STREET



Section B-B  
15th Street to 16th Street; Alt 2



### ALTERNATIVE 3A

1. RECONSTRUCT EXISTING PAVEMENT AND WIDEN OAK STREET BETWEEN 15TH STREET AND 16TH STREET, INCLUDES CURB & GUTTER, AND SIDEWALK. UTILIZE LOW IMPACT DESIGN METHODS SUCH AS BIOSWALES AND PERVIOUS CONCRETE.
2. INSTALL STRIPING PER TYPICAL SECTION ON THIS SHEET.
3. RESTRICT PARKING ALONG BOTH SIDES OF OAK STREET.
4. MODIFY THE EXISTING TRAFFIC SIGNAL FOR WIDENED ROAD, AND INCLUDE BIKE DETECTION, OR PROVIDE ADDITIONAL PUSH BUTTONS FOR BICYCLES.
5. IMPROVEMENTS REQUIRE APPROXIMATELY 16-FT OF ADDITIONAL RIGHT OF WAY.

### ALTERNATIVE 3B

1. RECONSTRUCT EXISTING PAVEMENT AND WIDEN OAK STREET BETWEEN 15TH STREET AND 16TH STREET, INCLUDES CURB & GUTTER, AND SIDEWALK. UTILIZE EXISTING DRAINAGE SYSTEM.
2. INSTALL STRIPING PER TYPICAL SECTION ON THIS SHEET.
3. RESTRICT PARKING ALONG BOTH SIDES OF OAK STREET.
4. MODIFY THE EXISTING TRAFFIC SIGNAL FOR WIDENED ROAD, AND INCLUDE BIKE DETECTION, OR PROVIDE ADDITIONAL PUSH BUTTONS FOR BICYCLES.
5. IMPROVEMENTS REQUIRE APPROXIMATELY 16-FT OF ADDITIONAL RIGHT OF WAY.

15TH STREET TO 16TH STREET

OAK STREET BICYCLE CORRIDOR  
IMPROVEMENT STUDY

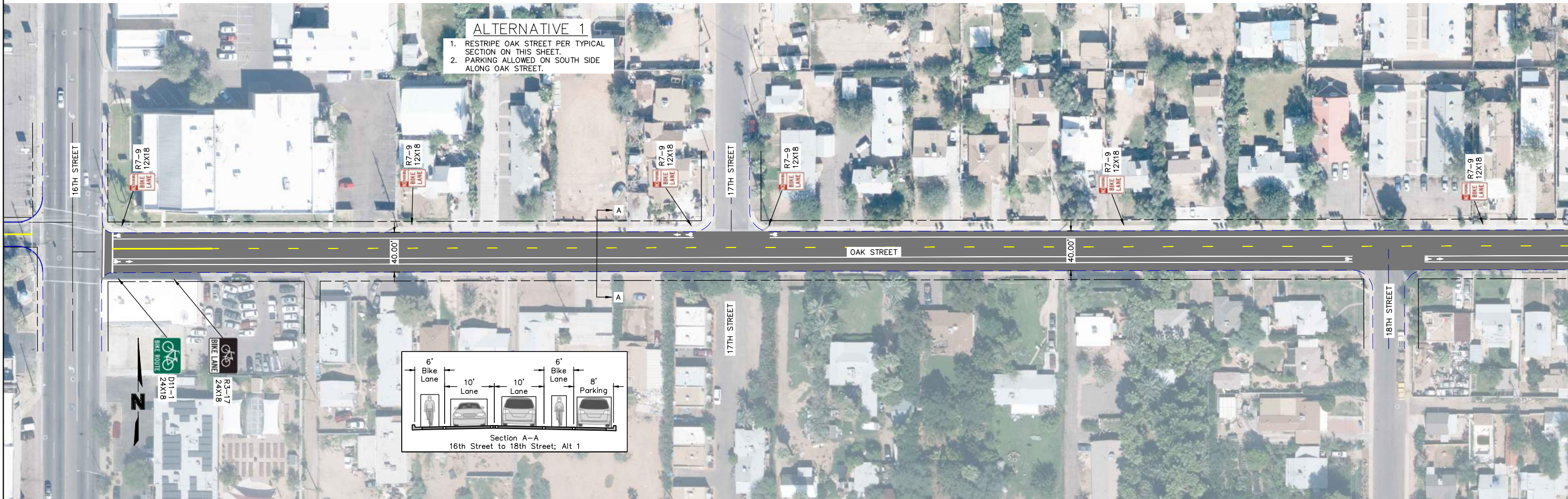
PHOENIX, AZ

2016

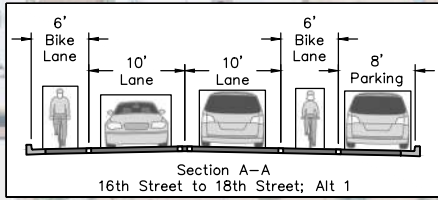


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**ALTERNATIVE 1**  
 1. RESTRIPE OAK STREET PER TYPICAL SECTION ON THIS SHEET.  
 2. PARKING ALLOWED ON SOUTH SIDE ALONG OAK STREET.

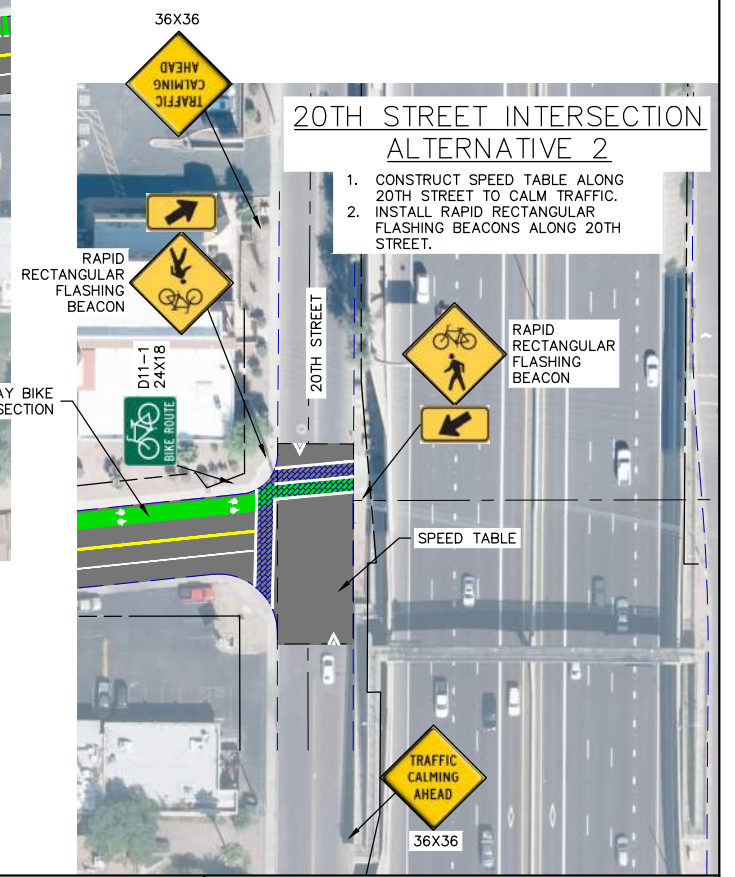
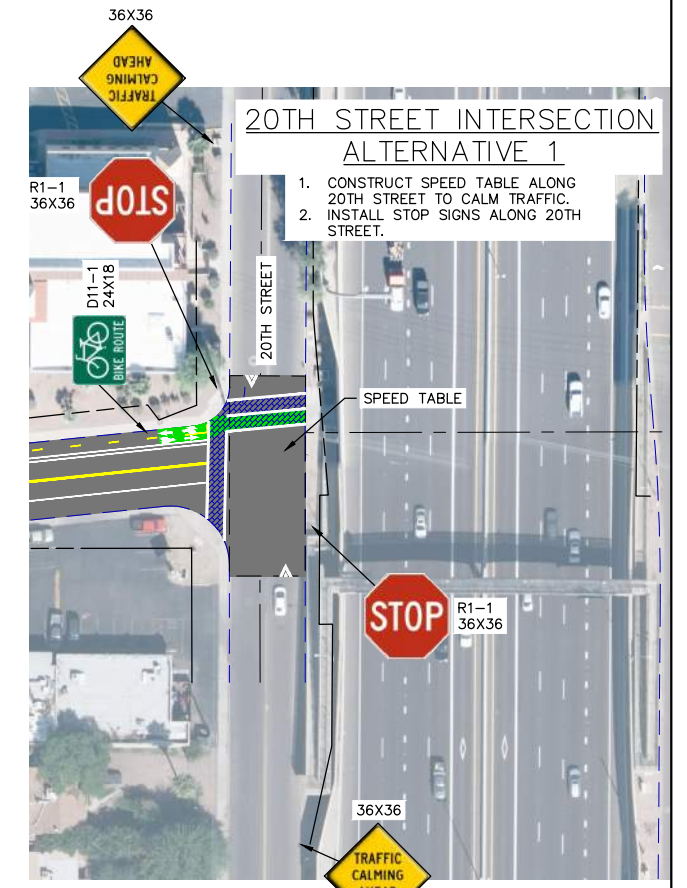
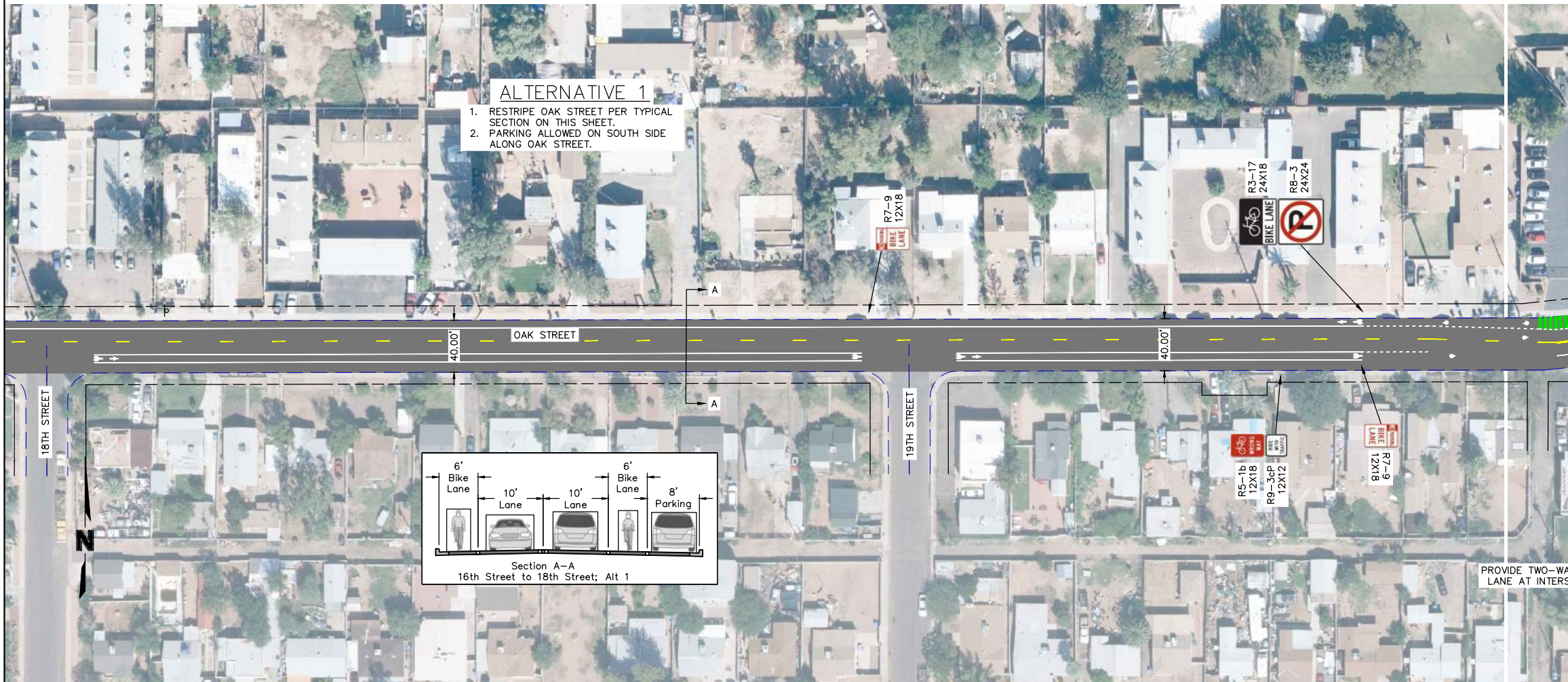


16TH STREET TO 18TH STREET	
OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY	
PHOENIX, AZ	2016

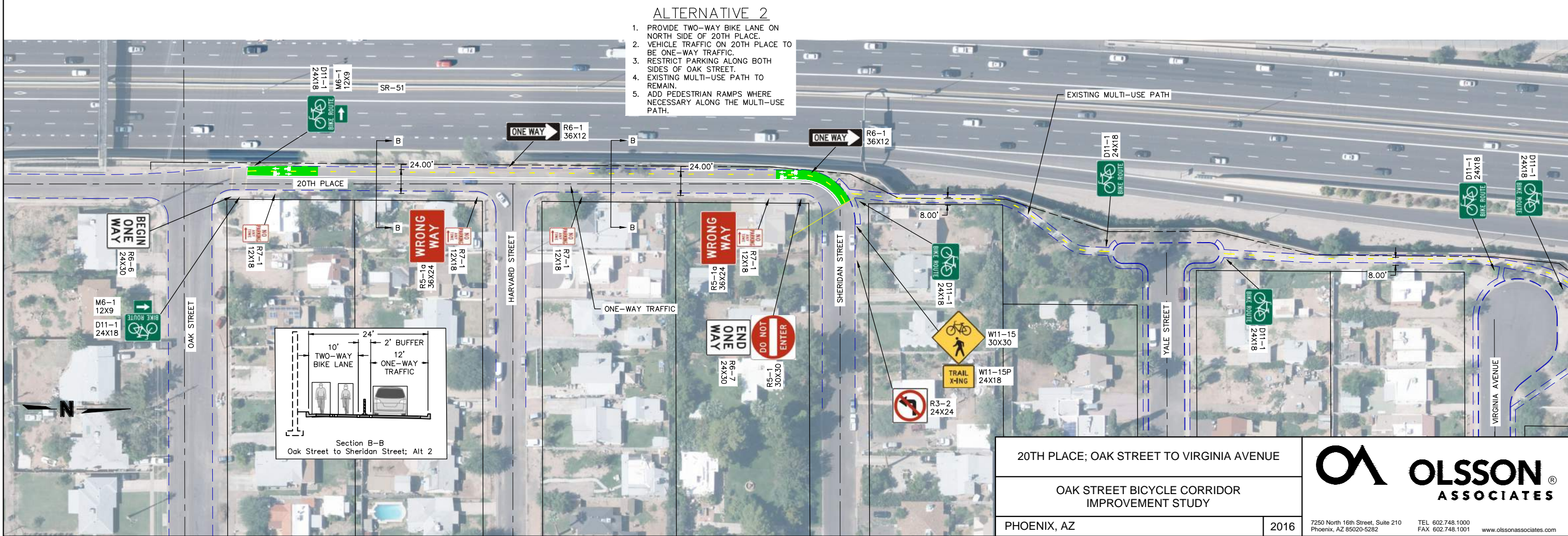
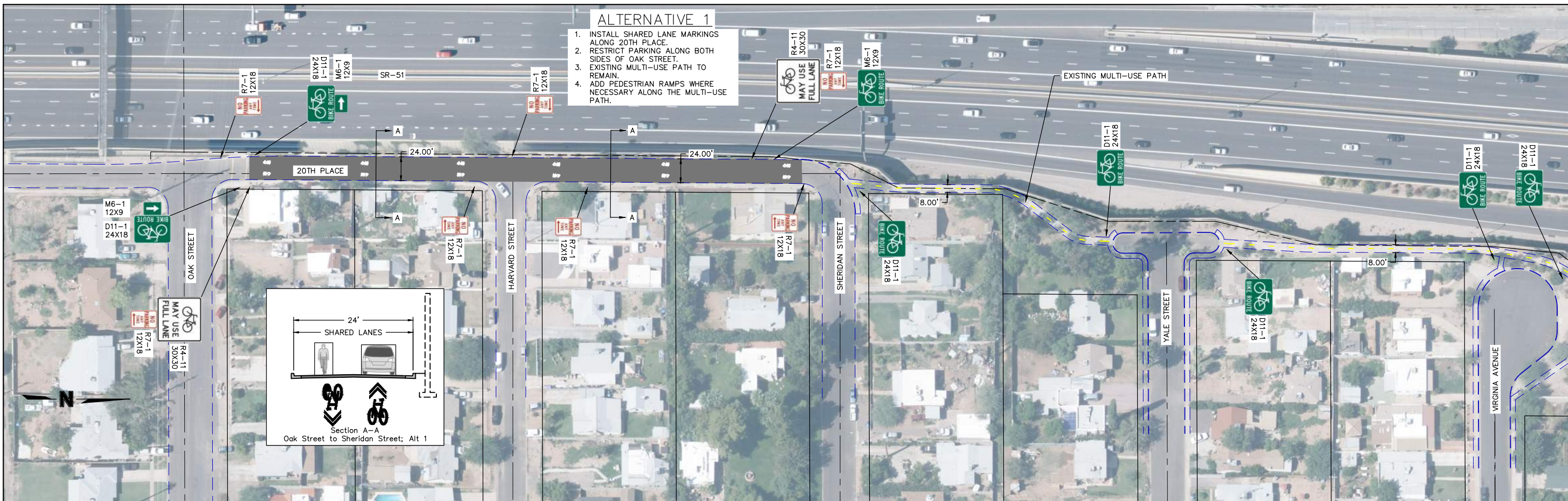


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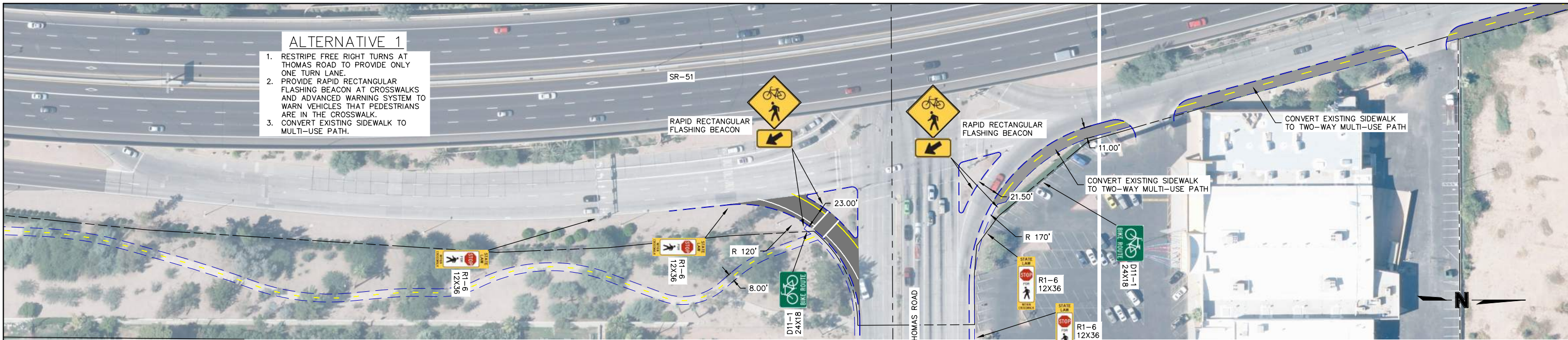






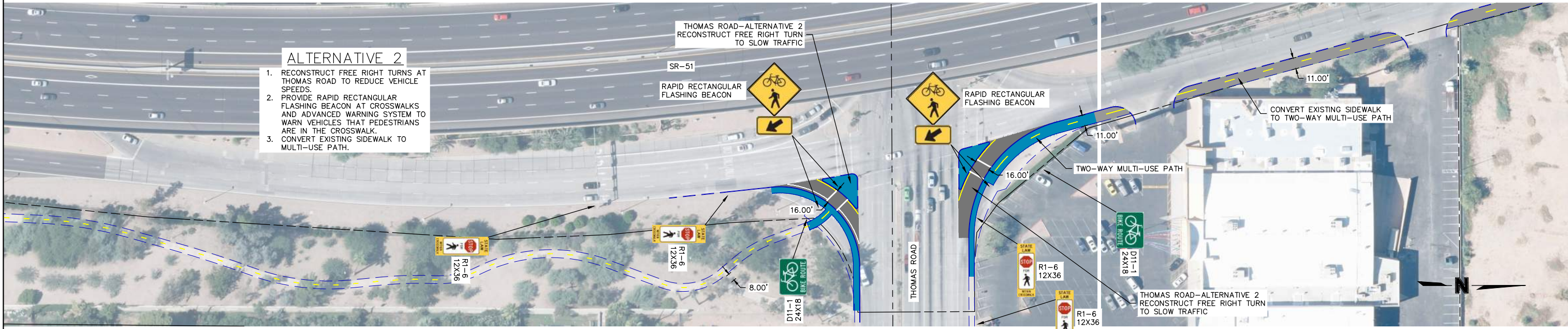
**ALTERNATIVE 1**

1. RESTRIPE FREE RIGHT TURNS AT THOMAS ROAD TO PROVIDE ONLY ONE TURN LANE.
2. PROVIDE RAPID RECTANGULAR FLASHING BEACON AT CROSSWALKS AND ADVANCED WARNING SYSTEM TO WARN VEHICLES THAT PEDESTRIANS ARE IN THE CROSSWALK.
3. CONVERT EXISTING SIDEWALK TO MULTI-USE PATH.



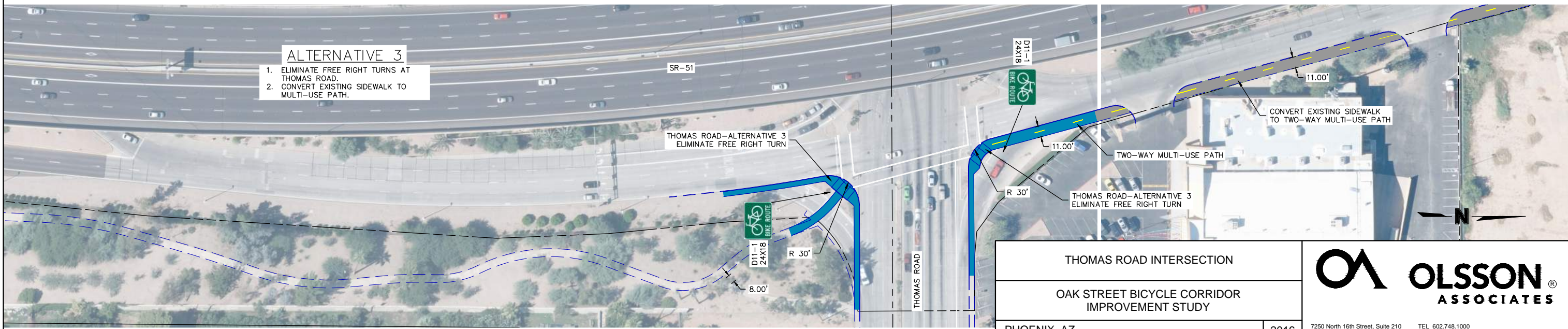
**ALTERNATIVE 2**

1. RECONSTRUCT FREE RIGHT TURNS AT THOMAS ROAD TO REDUCE VEHICLE SPEEDS.
2. PROVIDE RAPID RECTANGULAR FLASHING BEACON AT CROSSWALKS AND ADVANCED WARNING SYSTEM TO WARN VEHICLES THAT PEDESTRIANS ARE IN THE CROSSWALK.
3. CONVERT EXISTING SIDEWALK TO MULTI-USE PATH.



**ALTERNATIVE 3**

1. ELIMINATE FREE RIGHT TURNS AT THOMAS ROAD.
2. CONVERT EXISTING SIDEWALK TO MULTI-USE PATH.

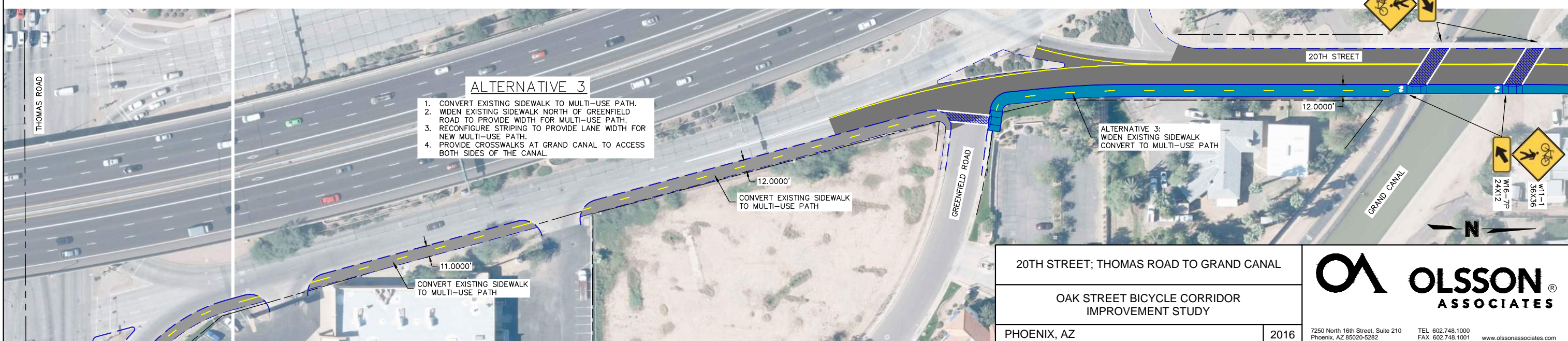
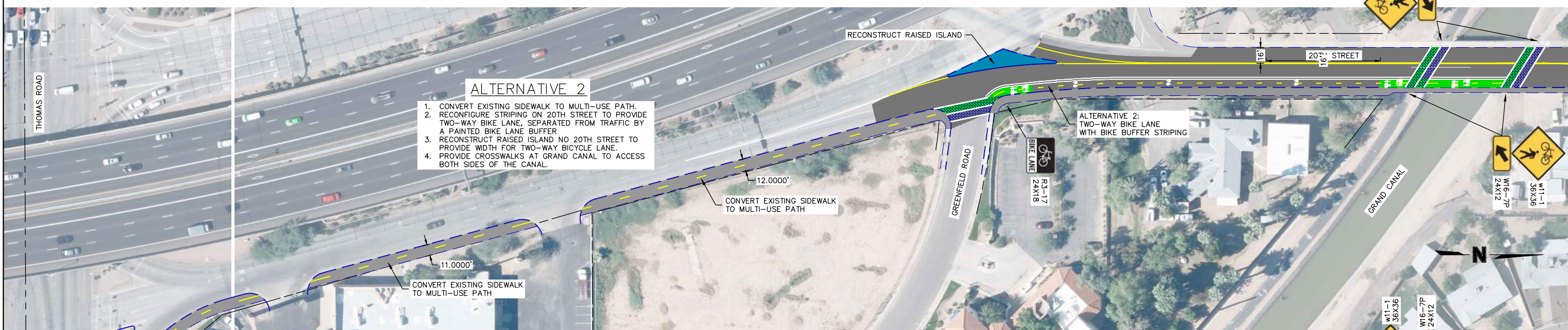
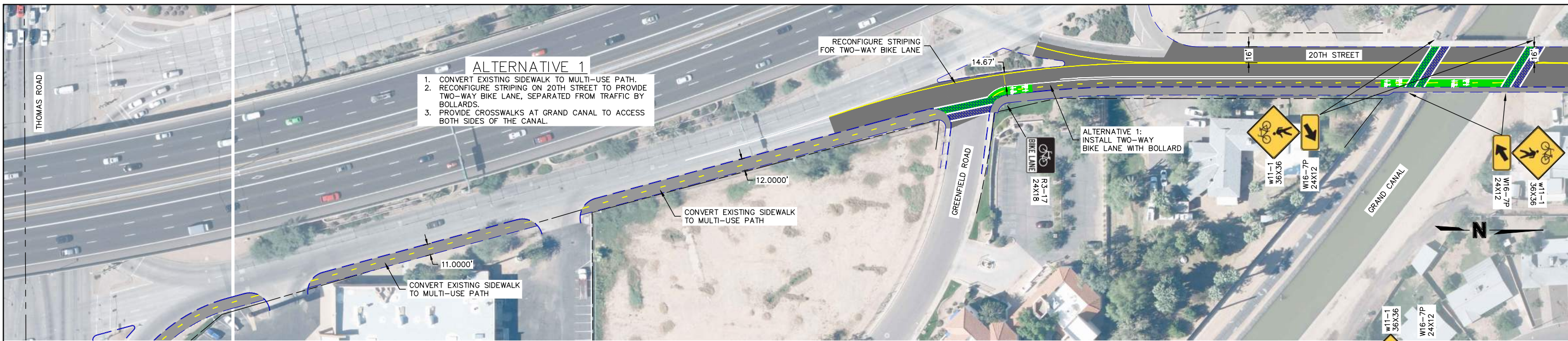


THOMAS ROAD INTERSECTION  
 OAK STREET BICYCLE CORRIDOR  
 IMPROVEMENT STUDY  
 PHOENIX, AZ



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20TH STREET; THOMAS ROAD TO GRAND CANAL

OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

PHOENIX, AZ

**OLSSON ASSOCIATES**

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## APPENDIX 2 OPINIONS OF PROBABLE COSTS

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## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

3RD STREET TO 7TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$11,500.00	\$11,500.00	
					<b>\$11,500.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,500.00	\$1,500.00	
M3507001	Misc. Removals	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$3,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	10	Each	\$225.00	\$2,250.00	
M4004101	Sign Post (P-1) Square Perforated	115	LF	\$15.00	\$1,725.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	32	SF	\$25.00	\$800.00	
					<b>\$5,775.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1450	LF	\$1.00	\$1,450.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	3951	LF	\$1.00	\$3,951.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	1013	LF	\$1.00	\$1,013.00	
M4004701	Pavement Marking, Preformed	33	Each	\$140.00	\$4,620.00	
M4004710	Preformed Thermoplastic - Green	1929	SF	\$7.25	\$13,985.25	
M4004720	Flexible Traffic Delineator	26	Each	\$10.00	\$260.00	
					<b>\$25,279.25</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$600.00	\$600.00	
M3513141	Electrical Conduit	1160	LF	\$18.00	\$20,880.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00	
					<b>\$49,880.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$2,000.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	5812	SY	\$3.00	\$17,436.00	
					<b>\$17,436.00</b>	

**3RD TO 7TH ALTERNATIVE 1 SUB-TOTAL: \$114,870.25**  
**CONTINGENCY (20%): \$22,974.05**  
**PRELIMINARY ENGINEERING (10%): \$13,790.00**  
**CONSTRUCTION ENGINEERING (12%): \$16,550.00**  
**3RD TO 7TH ALTERNATIVE 1 TOTAL: \$168,190.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

3RD STREET TO 7TH STREET - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$11,500.00	\$11,500.00	
					<b>\$11,500.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,500.00	\$1,500.00	
M3507001	Misc. Removals	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$3,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	7	Each	\$225.00	\$1,575.00	
M4004101	Sign Post (P-1) Square Perforated	81	LF	\$15.00	\$1,215.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	19	SF	\$25.00	\$475.00	
					<b>\$4,265.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1450	LF	\$1.00	\$1,450.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	4529	LF	\$1.00	\$4,529.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	1251	LF	\$1.00	\$1,251.00	
M4004701	Pavement Marking, Preformed	44	Each	\$140.00	\$6,160.00	
M4004710	Preformed Thermoplastic - Green	1765	SF	\$7.25	\$12,796.25	
M4004720	Flexible Traffic Delineator	122	Each	\$10.00	\$1,220.00	
					<b>\$27,406.25</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$600.00	\$600.00	
M3513141	Electrical Conduit	1160	LF	\$18.00	\$20,880.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00	
					<b>\$49,880.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$2,000.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	5812	SY	\$3.00	\$17,436.00	
					<b>\$17,436.00</b>	

3RD TO 7TH ALTERNATIVE 2 SUB-TOTAL: \$115,487.25  
 CONTINGENCY (20%): \$23,097.45  
 PRELIMINARY ENGINEERING (10%): \$13,860.00  
 CONSTRUCTION ENGINEERING (12%): \$16,640.00  
 3RD TO 7TH ALTERNATIVE 2 TOTAL: \$169,090.00

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET / 7TH STREET INTERSECTION - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$5,000.00	\$5,000.00	
					<b>\$5,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$3,000.00</b>	
<b>SIGNAL</b>						
M3515009	Traffic Signal Face (Pedestrian) (Bikes OK) (LED) Signal	2	Each	\$750.00	\$1,500.00	
M3515010	Pedestrian Pole and Push Button	2	Each	\$5,000.00	\$10,000.00	
					<b>\$11,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00	
M4004101	Sign Post (P-1) Square Perforated	51	LF	\$15.00	\$765.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	55	SF	\$25.00	\$1,375.00	
					<b>\$4,040.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	1117	SF	\$10.00	\$11,170.00	
M3505050	Remove Existing Striping	216	LF	\$1.00	\$216.00	
M4004701	Pavement Marking, Preformed	26	Each	\$140.00	\$3,640.00	
M4004710	Preformed Thermoplastic - Green	1042	SF	\$7.25	\$7,554.50	
					<b>\$22,580.50</b>	

**7TH INTERSECTION ALTERNATIVE 1 SUB-TOTAL: \$46,120.50**  
**CONTINGENCY (20%): \$9,224.10**  
**PRELIMINARY ENGINEERING (10%) \$5,540.00**  
**CONSTRUCTION ENGINEERING (12%) \$6,650.00**  
**7TH INTERSECTION ALTERNATIVE 1 SUB-TOTAL: \$67,540.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET / 7TH STREET INTERSECTION - ALTERNATIVE 2A						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$9,500.00	\$9,500.00	
					<b>\$9,500.00</b>	
<b>CONCRETE</b>						
M3400010	Concrete Median	990	SF	\$5.00	\$4,950.00	
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
M3402222	Concrete Single Curb, Std. Detail 222, Type "B"	624	LF	\$25.00	\$15,600.00	
					<b>\$28,550.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,500.00	\$2,500.00	
M3507001	Misc. Removals	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$4,500.00</b>	
<b>SIGNAL</b>						
M3518010	Relocate Pedestrian Pole and Push Button	2	Each	\$5,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00	
M4004101	Sign Post (P-1) Square Perforated	51	LF	\$15.00	\$765.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	49	SF	\$25.00	\$1,225.00	
					<b>\$3,890.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	3205	SF	\$10.00	\$32,050.00	
M3505050	Remove Existing Striping	129	LF	\$1.00	\$129.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	86	LF	\$1.00	\$86.00	
M4004701	Pavement Marking, Preformed	38	Each	\$140.00	\$5,320.00	
					<b>\$37,585.00</b>	

**7TH INTERSECTION ALTERNATIVE 2A SUB-TOTAL: \$94,025.00**  
**CONTINGENCY (20%): \$18,805.00**  
**PRELIMINARY ENGINEERING (10%) \$11,290.00**  
**CONSTRUCTION ENGINEERING (12%) \$13,540.00**  
**7TH INTERSECTION ALTERNATIVE 2A SUB-TOTAL: \$137,660.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET / 7TH STREET - ALTERNATIVE 2B						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$31,000.00	\$31,000.00	
<b>CONCRETE</b>						
M3400010	Concrete Median	990	SF	\$5.00	\$4,950.00	
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
M3402222	Concrete Single Curb, Std. Detail 222, Type "B"	624	LF	\$25.00	\$15,600.00	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,500.00	\$2,500.00	
M3507001	Misc. Removals	1	Lump	\$2,000.00	\$2,000.00	
<b>SIGNAL</b>						
M3500303	Remove and Salvage Existing HAWK Signal	1	Lump	\$3,500.00	\$3,500.00	
M3518020	7th Street Intersection Traffic Signal	1	Lump	\$200,000.00	\$200,000.00	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00	
M4004101	Sign Post (P-1) Square Perforated	51	LF	\$15.00	\$765.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	49	SF	\$25.00	\$1,225.00	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	3205	SF	\$10.00	\$32,050.00	
M3505050	Remove Existing Striping	129	LF	\$1.00	\$129.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	86	LF	\$1.00	\$86.00	
M4004701	Pavement Marking, Preformed	38	Each	\$140.00	\$5,320.00	
					<b>\$37,585.00</b>	

**7TH INTERSECTION ALTERNATIVE 2B SUB-TOTAL: \$309,025.00**  
**CONTINGENCY (20%): \$61,805.00**  
**PRELIMINARY ENGINEERING (10%): \$37,090.00**  
**CONSTRUCTION ENGINEERING (12%): \$44,500.00**  
**7TH INTERSECTION ALTERNATIVE 2B SUB-TOTAL: \$452,420.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

7TH STREET TO 10TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$21,500.00	\$21,500.00	
					<b>\$21,500.00</b>	
<b>CONCRETE</b>						
M3400400	Concrete Sidewalk, Std. Detail P-1230	9652	SF	\$6.00	\$57,912.00	
M3400488	Concrete Curb Ramp, (9" Thick)	8	Each	\$2,000.00	\$16,000.00	
M3500058	Remove Sidewalk	4826	SF	\$4.00	\$19,304.00	
					<b>\$93,216.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,000.00	\$2,000.00	
M3507001	Misc. Removals	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$4,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	5	Each	\$225.00	\$1,125.00	
M4004101	Sign Post (P-1) Square Perforated	59	LF	\$15.00	\$885.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	22	SF	\$25.00	\$550.00	
					<b>\$3,560.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1260	LF	\$1.00	\$1,260.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	4655	LF	\$1.00	\$4,655.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	499	LF	\$1.00	\$499.00	
M4004701	Pavement Marking, Preformed	38	Each	\$140.00	\$5,320.00	
M4004710	Preformed Thermoplastic - Green	664	SF	\$7.25	\$4,814.00	
M4004720	Flexible Traffic Delineator	10	Each	\$10.00	\$100.00	
					<b>\$16,648.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$640.00	\$640.00	
M3513141	Electrical Conduit	1260	LF	\$18.00	\$22,680.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
					<b>\$50,920.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$2,000.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	6399	SY	\$3.00	\$19,197.00	
					<b>\$19,197.00</b>	

**7TH TO 10TH ALTERNATIVE 1 SUB-TOTAL: \$211,041.00**  
**CONTINGENCY (20%): \$42,208.20**  
**PRELIMINARY ENGINEERING (10%) \$25,330.00**  
**CONSTRUCTION ENGINEERING (12%) \$30,390.00**  
**7TH TO 10TH ALTERNATIVE 1 TOTAL: \$308,970.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

7TH STREET TO 10TH STREET - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$23,000.00	\$23,000.00	
					<b>\$23,000.00</b>	
<b>CONCRETE</b>						
M3400400	Concrete Sidewalk, Std. Detail P-1230	9652	SF	\$6.00	\$57,912.00	
M3400488	Concrete Curb Ramp, (9" Thick)	8	Each	\$2,000.00	\$16,000.00	
M3500058	Remove Sidewalk	4826	SF	\$4.00	\$19,304.00	
					<b>\$93,216.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,000.00	\$2,000.00	
M3507001	Misc. Removals	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$4,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	10	Each	\$225.00	\$2,250.00	
M4004101	Sign Post (P-1) Square Perforated	115	LF	\$15.00	\$1,725.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	24	SF	\$25.00	\$600.00	
					<b>\$5,575.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1260	LF	\$1.00	\$1,260.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	3781	LF	\$1.00	\$3,781.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	3335	LF	\$1.00	\$3,335.00	
M4004701	Pavement Marking, Preformed	41	Each	\$140.00	\$5,740.00	
M4004710	Preformed Thermoplastic - Green	2164	SF	\$7.25	\$15,689.00	
M4004720	Flexible Traffic Delineator	127	Each	\$10.00	\$1,270.00	
					<b>\$31,075.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$640.00	\$640.00	
M3513141	Electrical Conduit	1260	LF	\$18.00	\$22,680.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
					<b>\$50,920.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$2,000.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	6399	SY	\$3.00	\$19,197.00	
					<b>\$19,197.00</b>	

**7TH TO 10TH ALTERNATIVE 2 SUB-TOTAL: \$228,983.00**  
**CONTINGENCY (20%): \$45,796.60**  
**PRELIMINARY ENGINEERING (10%) \$27,480.00**  
**CONSTRUCTION ENGINEERING (12%) \$32,980.00**  
**7TH TO 10TH ALTERNATIVE 2 TOTAL: \$335,240.00**



# OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

10TH STREET TO DAYTON STREET - ALTERNATIVE 1									
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS			
<b>MISCELLANEOUS ITEMS</b>									
M1081000	Mobilization	1	Lump	\$3,000.00	\$3,000.00				
					<b>\$3,000.00</b>				
<b>REMOVALS</b>									
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00				
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00				
					<b>\$2,000.00</b>				
<b>SIGNING</b>									
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00				
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00				
M4004101	Sign Post (P-1) Square Perforated	48	LF	\$15.00	\$720.00				
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	19	SF	\$25.00	\$475.00				
					<b>\$3,095.00</b>				
<b>STRIPING</b>									
M3505050	Remove Existing Striping	247	LF	\$1.00	\$247.00				
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	62	LF	\$1.00	\$62.00				
M4004701	Pavement Marking, Preformed	18	Each	\$140.00	\$2,520.00				
					<b>\$2,829.00</b>				
<b>LIGHTING</b>									
M3505030	Conductors	1	Lump	\$160.00	\$160.00				
M3513141	Electrical Conduit	315	LF	\$18.00	\$5,670.00				
M3513271	Pull Box, Roadway Lighting	2	Each	\$350.00	\$700.00				
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	2	Each	\$2,500.00	\$5,000.00				
M3515032	Foundation, Roadway Light Pole	2	Each	\$600.00	\$1,200.00				
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00				
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	3	Each	\$550.00	\$1,650.00				
					<b>\$14,580.00</b>				
<b>PAVEMENT REHAB</b>									
M3310300	Micro-Surfacing	879	SY	\$3.00	\$2,637.00				
					<b>\$2,637.00</b>				

**10TH TO DAYTON ALTERNATIVE 1 SUB-TOTAL: \$28,141.00**  
**CONTINGENCY (20%): \$5,628.20**  
**PRELIMINARY ENGINEERING (10%) \$3,380.00**  
**CONSTRUCTION ENGINEERING (12%) \$4,060.00**  
**10TH TO DAYTON ALTERNATIVE 1 TOTAL: \$41,210.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

10TH STREET TO DAYTON STREET - ALTERNATIVE 2A						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$12,500.00	\$12,500.00	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	1296	SY	\$3.00	\$3,888.00	
M3100000	Aggregate Base Course	144	CY	\$45.00	\$6,480.00	
M3210201	Asphalt Concrete	219	Ton	\$85.00	\$18,615.00	
M3400400	Concrete Sidewalk, Std. Detail P-1230	3729	SF	\$6.00	\$22,374.00	
M3400488	Concrete Curb Ramp, (6" Thick)	4	Each	\$2,000.00	\$8,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	641	LF	\$25.00	\$16,025.00	
					<b>\$75,382.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust. Utilities	1	Lump	\$2,500.00	\$2,500.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$3,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	3	Each	\$225.00	\$675.00	
M4004101	Sign Post (P-1) Square Perforated Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	35	LF	\$15.00	\$525.00	
M4004413	Reflective Sheeting	12	SF	\$25.00	\$300.00	
					<b>\$2,500.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	754	LF	\$1.00	\$754.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	70	LF	\$1.00	\$70.00	
M4004701	Pavement Marking, Preformed	4	Each	\$140.00	\$560.00	
					<b>\$1,384.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$160.00	\$160.00	
M3513141	Electrical Conduit	315	LF	\$18.00	\$5,670.00	
M3513271	Pull Box, Roadway Lighting	2	Each	\$350.00	\$700.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	2	Each	\$2,500.00	\$5,000.00	
M3515032	Foundation, Roadway Light Pole	2	Each	\$600.00	\$1,200.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	3	Each	\$550.00	\$1,650.00	
					<b>\$14,580.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$10,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	

**10TH TO DAYTON ALTERNATIVE 2A SUB-TOTAL \$121,346.00**  
 CONTINGENCY (20%): \$24,269.20  
 PRELIMINARY ENGINEERING (10%) \$14,570.00  
 CONSTRUCTION ENGINEERING (12%) \$17,480.00  
**10TH TO DAYTON ALTERNATIVE 2A TOTAL \$177,670.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

10TH STREET TO DAYTON STREET - ALTERNATIVE 2B						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M11081000	Mobilization	1	Lump	\$14,500.00	\$14,500.00	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	1296	SY	\$3.00	\$3,888.00	
M3100000	Aggregate Base Course	144	CY	\$45.00	\$6,480.00	
M3210201	Asphalt Concrete	193	Ton	\$85.00	\$16,405.00	
M3245050	Previous Concrete Pavement	1375	SF	\$15.50	\$21,312.50	
M3400400	Concrete Sidewalk, Std. Detail P-1230	3729	SF	\$6.00	\$22,374.00	
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type A	641	LF	\$25.00	\$16,025.00	
					<b>\$94,484.50</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,500.00	\$2,500.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$3,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	3	Each	\$225.00	\$675.00	
M4004101	Sign Post (P-1) Square Perforated	35	LF	\$15.00	\$525.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	12	SF	\$25.00	\$300.00	
					<b>\$2,500.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	754	LF	\$1.00	\$754.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	70	LF	\$1.00	\$70.00	
M4004701	Pavement Marking, Preformed	4	Each	\$140.00	\$560.00	
					<b>\$1,384.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$160.00	\$160.00	
M3513141	Electrical Conduit	315	LF	\$18.00	\$5,670.00	
M3513271	Pull Box, Roadway Lighting	2	Each	\$350.00	\$700.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	2	Each	\$2,500.00	\$5,000.00	
M3515032	Foundation, Roadway Light Pole	2	Each	\$600.00	\$1,200.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	3	Each	\$550.00	\$1,650.00	
					<b>\$14,580.00</b>	
<b>DRAINAGE</b>						
M6189700	Low Impact Drainage	1	Lump	\$10,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	

10TH TO DAYTON ALTERNATIVE 2B SUB-TOTAL: \$142,448.50  
 CONTINGENCY (20%): \$28,489.70  
 PRELIMINARY ENGINEERING (10%): \$17,100.00  
 CONSTRUCTION ENGINEERING (12%): \$20,520.00  
 10TH TO DAYTON ALTERNATIVE 2B TOTAL: \$208,560.00

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

DAYTON STREET TO 12TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$12,000.00	\$12,000.00	
					<b>\$12,000.00</b>	
<b>CONCRETE</b>						
M3400010	Concrete Median	2061	SF	\$5.00	\$10,305.00	
M3402222	Concrete Single Curb, Std. Detail 222, Type "B"	250	LF	\$25.00	\$6,250.00	
					<b>\$16,555.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,500.00	\$1,500.00	
M3507001	Misc. Removals	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$3,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	14	Each	\$225.00	\$3,150.00	
M4004101	Sign Post (P-1) Square Perforated	173	LF	\$15.00	\$2,595.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	103	SF	\$25.00	\$2,575.00	
					<b>\$9,320.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	1576	SF	\$10.00	\$15,760.00	
M3505050	Remove Existing Striping	792	LF	\$1.00	\$792.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	2486	LF	\$1.00	\$2,486.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	957	LF	\$1.00	\$957.00	
M4004701	Pavement Marking, Preformed	56	Each	\$140.00	\$7,840.00	
					<b>\$27,835.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$480.00	\$480.00	
M3513141	Electrical Conduit	950	LF	\$18.00	\$17,100.00	
M3513271	Pull Box, Roadway Lighting	6	Each	\$350.00	\$2,100.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	6	Each	\$2,500.00	\$15,000.00	
M3515032	Foundation, Roadway Light Pole	6	Each	\$600.00	\$3,600.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00	
					<b>\$39,080.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	4025	SY	\$3.00	\$12,075.00	
					<b>\$12,075.00</b>	

DAYTON TO 12TH ALTERNATIVE 1 SUB-TOTAL **\$119,865.00**  
 CONTINGENCY (20%) **\$23,973.00**  
 PRELIMINARY ENGINEERING (10%) **\$14,390.00**  
 CONSTRUCTION ENGINEERING (12%) **\$17,270.00**  
 DAYTON TO 12TH ALTERNATIVE 1 TOTAL **\$175,500.00**



**OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY**

<b>DAYTON STREET TO 12TH STREET - ALTERNATIVE 2</b>						
BID ITEM DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS	
<b>MISCELLANEOUS ITEMS</b>						
M11081000 Mobilization	1	Lump	\$19,000.00	\$19,000.00		
<b>CONCRETE</b>						
M3400010 Concrete Median	485	SF	\$5.00	\$2,425.00		
M3400400 Concrete Sidewalk, Std. Detail P-1230	2839	SF	\$6.00	\$17,034.00		
M3400488 Concrete Curb Ramp, (9" Thick)	6	Each	\$2,000.00	\$12,000.00		
M3402200 Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	250	LF	\$25.00	\$6,250.00		
M3402222 Concrete Single Curb, Std. Detail 222, Type "B"	250	LF	\$25.00	\$6,250.00		
M3500053 Remove Concrete Curb and Gutter	126	LF	\$5.00	\$630.00		
M3500058 Remove Sidewalk	2480	SF	\$4.00	\$9,840.00		
				<b>\$54,429.00</b>		
<b>REMOVALS</b>						
M3500309 Sign Removal	1	Lump	\$1,000.00	\$1,000.00		
M3507001 Misc. Removals	1	Lump	\$3,000.00	\$3,000.00		
				<b>\$4,000.00</b>		
<b>SIGNING</b>						
M3500309 Sign Removal	1	Lump	\$1,000.00	\$1,000.00		
M4004100 Perforated Sign Post Foundation	15	Each	\$225.00	\$3,375.00		
M4004101 Sign Post (P-1) Square Perforated	185	LF	\$15.00	\$2,775.00		
M4004413 Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	109	SF	\$25.00	\$2,725.00		
				<b>\$9,875.00</b>		
<b>STRIPING</b>						
M3420000 Stamped Asphalt	1576	SF	\$10.00	\$15,760.00		
M3505050 Remove Existing Striping	792	LF	\$1.00	\$792.00		
M4004501 Pavement Marking (White Thermoplastic) (0.060") 4"	2550	LF	\$1.00	\$2,550.00		
M4004502 Pavement Marking (Yellow Thermoplastic) (0.060") 4"	892	LF	\$1.00	\$892.00		
M4004701 Pavement Marking, Preformed	81	Each	\$140.00	\$11,340.00		
M4004710 Preformed Thermoplastic - Green	1237	SF	\$7.25	\$8,968.25		
M4004720 Flexible Traffic Delineator	80	Each	\$10.00	\$800.00		
				<b>\$41,082.25</b>		
<b>DRAINAGE</b>						
M6189600 Drainage Items	1	Lump	\$7,500.00	\$7,500.00		
				<b>\$7,500.00</b>		
<b>LIGHTING</b>						
M3505030 Conductors	1	Lump	\$480.00	\$480.00		
M3513141 Electrical Conduit	950	LF	\$18.00	\$17,100.00		
M3513271 Pull Box, Roadway Lighting	6	Each	\$350.00	\$2,100.00		
M3515031 Roadway Light Pole, Mast Arm, and Luminaire	6	Each	\$2,500.00	\$15,000.00		
M3515032 Foundation, Roadway Light Pole	6	Each	\$600.00	\$3,600.00		
M3515049 Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00		
				<b>\$39,080.00</b>		
<b>PAVEMENT REHAB</b>						
M3310300 Micro-Surfacing	4025	SY	\$3.00	\$12,075.00		
				<b>\$12,075.00</b>		

DAYTON TO 12TH ALTERNATIVE 2 SUB-TOTAL: \$187,041.25  
 CONTINGENCY (20%): \$37,408.25  
 PRELIMINARY ENGINEERING (10%): \$22,450.00  
 CONSTRUCTION ENGINEERING (12%): \$26,940.00  
 DAYTON TO 12TH ALTERNATIVE 2 TOTAL: \$273,840.00

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

12TH STREET TO 14TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$9,500.00	\$9,500.00	
					<b>\$9,500.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	9	Each	\$225.00	\$2,025.00	
M4004101	Sign Post (P-1) Square Perforated	104	LF	\$15.00	\$1,560.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	25	SF	\$25.00	\$625.00	
					<b>\$5,210.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1259	LF	\$1.00	\$1,259.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	3366	LF	\$1.00	\$3,366.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	475	LF	\$1.00	\$475.00	
M4004701	Pavement Marking, Preformed	24	Each	\$140.00	\$3,360.00	
					<b>\$8,460.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$640.00	\$640.00	
M3513141	Electrical Conduit	1265	LF	\$18.00	\$22,770.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00	
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	1	Each	\$550.00	\$550.00	
					<b>\$52,360.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	5526	SY	\$3.00	\$16,578.00	
					<b>\$16,578.00</b>	

**12TH TO 14TH ALTERNATIVE 1 SUB-TOTAL: \$94,108.00**  
**CONTINGENCY (20%): \$18,821.60**  
**PRELIMINARY ENGINEERING (10%) \$11,300.00**  
**CONSTRUCTION ENGINEERING (12%) \$13,560.00**  
**12TH TO 14TH ALTERNATIVE 1 TOTAL: \$137,790.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

12TH STREET TO 14TH STREET - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$11,000.00	\$11,000.00	
					<b>\$11,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	8	Each	\$225.00	\$1,800.00	
M4004101	Sign Post (P-1) Square Perforated	92	LF	\$15.00	\$1,380.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	19	SF	\$25.00	\$475.00	
					<b>\$4,655.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1259	LF	\$1.00	\$1,259.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	3556	LF	\$1.00	\$3,556.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	1036	LF	\$1.00	\$1,036.00	
M4004701	Pavement Marking, Preformed	32	Each	\$140.00	\$4,480.00	
M4004710	Preformed Thermoplastic - Green	1514	SF	\$7.25	\$10,976.50	
M4004720	Flexible Traffic Delineator	115	Each	\$10.00	\$1,150.00	
					<b>\$22,457.50</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$640.00	\$640.00	
M3513141	Electrical Conduit	1265	LF	\$18.00	\$22,770.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00	
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	1	Each	\$550.00	\$550.00	
					<b>\$52,360.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	5526	SY	\$3.00	\$16,578.00	
					<b>\$16,578.00</b>	

**12TH TO 14TH ALTERNATIVE 2 SUB-TOTAL: \$109,050.50**  
**CONTINGENCY (20%): \$21,810.10**  
**PRELIMINARY ENGINEERING (10%) \$13,090.00**  
**CONSTRUCTION ENGINEERING (12%) \$15,710.00**  
**12TH TO 14TH ALTERNATIVE 2 TOTAL: \$159,670.00**



# OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET / 14TH STREET INTERSECTION - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$6,000.00	\$6,000.00	
					<b>\$6,000.00</b>	
<b>CONCRETE</b>						
M3400488	Concrete Curb Ramp. (9" Thick)	5	Each	\$2,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$4,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$500.00	\$500.00	
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00	
M4004101	Sign Post (P-1) Square Perforated	50	LF	\$15.00	\$750.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	30	SF	\$25.00	\$750.00	
					<b>\$2,900.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	755	SF	\$10.00	\$7,550.00	
M4004701	Pavement Marking, Preformed	25	Each	\$140.00	\$3,500.00	
					<b>\$11,050.00</b>	
<b>SPEED TABLE</b>						
M3000050	Asphalt Concrete Pavement Milling	3550	SF	\$2.00	\$7,100.00	
M3210201	Asphalt Concrete	67	Ton	\$85.00	\$5,695.00	
					<b>\$12,795.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$3,000.00	\$3,000.00	
					<b>\$3,000.00</b>	

**14TH INTERSECTION ALTERNATIVE 1 SUB-TOTAL: \$50,245.00**  
**CONTINGENCY (20%): \$10,049.00**  
**PRELIMINARY ENGINEERING (10%) \$6,030.00**  
**CONSTRUCTION ENGINEERING (12%) \$7,240.00**  
**14TH INTERSECTION ALTERNATIVE 1 TOTAL: \$73,570.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET / 14TH STREET INTERSECTION - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$6,000.00	\$6,000.00	
					<b>\$6,000.00</b>	
<b>CONCRETE</b>						
M3400488	Concrete Curb Ramp. (9" Thick)	5	Each	\$2,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$4,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	2	Each	\$225.00	\$450.00	
M4004101	Sign Post (P-1) Square Perforated	25	LF	\$15.00	\$375.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	17	SF	\$25.00	\$425.00	
M4005401	Rapid Rectangular Flashing Beacon	2	Each	\$3,500.00	\$7,000.00	
					<b>\$9,250.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	755	SF	\$10.00	\$7,550.00	
M4004701	Pavement Marking, Preformed	25	Each	\$140.00	\$3,500.00	
					<b>\$11,050.00</b>	
<b>SPEED TABLE</b>						
M3000050	Asphalt Concrete Pavement Milling	3650	SF	\$2.00	\$7,100.00	
M3210201	Asphalt Concrete	67	Ton	\$85.00	\$5,695.00	
					<b>\$12,795.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$3,000.00	\$3,000.00	
					<b>\$3,000.00</b>	

**14TH INTERSECTION ALTERNATIVE 2 SUB-TOTAL: \$56,595.00**  
**CONTINGENCY (20%): \$11,319.00**  
**PRELIMINARY ENGINEERING (10%) \$6,800.00**  
**CONSTRUCTION ENGINEERING (12%) \$8,150.00**  
**14TH INTERSECTION ALTERNATIVE 2 TOTAL: \$82,870.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

14TH STREET TO 15TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M11081000	Mobilization	1	Lump	\$6,500.00	\$6,500.00	
					<b>\$6,500.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	10	Each	\$225.00	\$2,250.00	
M4004101	Sign Post (P-1) Square Perforated	117	LF	\$15.00	\$1,755.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	28	SF	\$25.00	\$700.00	
					<b>\$5,705.00</b>	
<b>STRIPING</b>						
M4004701	Pavement Marking, Preformed	16	Each	\$140.00	\$2,240.00	
					<b>\$2,240.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$300.00	\$300.00	
M3513141	Electrical Conduit	585	LF	\$18.00	\$10,530.00	
M3513271	Pull Box, Roadway Lighting	11	Each	\$350.00	\$3,850.00	
M3515035	Illuminated Bollard	11	Each	\$1,500.00	\$16,500.00	
M3515036	Foundation, Illuminated Bollard	11	Each	\$600.00	\$6,600.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$37,980.00</b>	
<b>SPEED HUMPS</b>						
M3211200	Speed Hump	10	Each	\$500.00	\$5,000.00	
					<b>\$5,000.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	991	SY	\$3.00	\$2,973.00	
					<b>\$2,973.00</b>	

**14TH TO 15TH ALTERNATIVE 1 SUB-TOTAL: \$63,898.00**  
**CONTINGENCY (20%): \$12,779.60**  
**PRELIMINARY ENGINEERING (10%) \$7,670.00**  
**CONSTRUCTION ENGINEERING (12%) \$9,210.00**  
**14TH TO 15TH ALTERNATIVE 1 TOTAL: \$93,560.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

14TH STREET TO 15TH STREET - ALTERNATIVE 2A						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$14,000.00	\$14,000.00	
					<b>\$14,000.00</b>	
<b>CONCRETE</b>						
M3000050	Asphalt Concrete Pavement Milling	8916	SF	\$2.00	\$17,832.00	
M3210201	Asphalt Concrete	168	Ton	\$85.00	\$14,280.00	
					<b>\$32,112.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$4,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	10	Each	\$225.00	\$2,250.00	
M4004101	Sign Post (P-1) Square Perforated	117	LF	\$15.00	\$1,755.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	28	SF	\$25.00	\$700.00	
					<b>\$5,705.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	3781	SF	\$10.00	\$37,810.00	
M4004701	Pavement Marking, Preformed	30	Each	\$140.00	\$4,200.00	
					<b>\$42,010.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$300.00	\$300.00	
M3513141	Electrical Conduit	585	LF	\$18.00	\$10,530.00	
M3513271	Pull Box, Roadway Lighting	11	Each	\$350.00	\$3,850.00	
M3515035	Illuminated Bollard	11	Each	\$1,500.00	\$16,500.00	
M3515036	Foundation, Illuminated Bollard	11	Each	\$600.00	\$6,600.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$37,980.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	

**14TH TO 15TH ALTERNATIVE 2A SUB-TOTAL: \$137,807.00**  
**CONTINGENCY (20%): \$27,561.40**  
**PRELIMINARY ENGINEERING (10%) \$16,540.00**  
**CONSTRUCTION ENGINEERING (12%) \$19,850.00**  
**14TH TO 15TH ALTERNATIVE 2A TOTAL \$201,760.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

14TH STREET TO 15TH STREET - ALTERNATIVE 2B						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$22,500.00	\$22,500.00	
					<b>\$22,500.00</b>	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	991	SY	\$3.00	\$2,973.00	
M3100000	Aggregate Base Course	111	CY	\$45.00	\$4,995.00	
M3245050	Pervious Concrete Pavement	8916	SF	\$15.50	\$138,198.00	
					<b>\$146,166.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$4,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	10	Each	\$225.00	\$2,250.00	
M4004101	Sign Post (P-1) Square Perforated	117	LF	\$15.00	\$1,755.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheetting	28	SF	\$25.00	\$700.00	
					<b>\$5,705.00</b>	
<b>STRIPING</b>						
M4004701	Pavement Marking, Preformed	30	Each	\$140.00	\$4,200.00	
					<b>\$4,200.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$300.00	\$300.00	
M3513141	Electrical Conduit	585	LF	\$18.00	\$10,530.00	
M3513271	Pull Box, Roadway Lighting	11	Each	\$350.00	\$3,850.00	
M3515035	Illuminated Bollard	11	Each	\$1,500.00	\$16,500.00	
M3515036	Foundation, Illuminated Bollard	11	Each	\$600.00	\$6,600.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$37,980.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	

**14TH TO 15TH ALTERNATIVE 2B SUB-TOTAL: \$222,551.00**  
**CONTINGENCY (20%): \$44,510.20**  
**PRELIMINARY ENGINEERING (10%) \$26,710.00**  
**CONSTRUCTION ENGINEERING (12%) \$32,050.00**  
**14TH TO 15TH ALTERNATIVE 2B TOTAL: \$325,830.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

14TH STREET TO 15TH STREET - ALTERNATIVE 3						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	
<b>REMOVALS</b>						
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$1,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	10	Each	\$225.00	\$2,250.00	
M4004101	Sign Post (P-1) Square Perforated	117	LF	\$15.00	\$1,755.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	43	SF	\$25.00	\$1,075.00	
					<b>\$6,080.00</b>	
<b>STRIPING</b>						
M4004701	Pavement Marking, Preformed	54	Each	\$140.00	\$7,560.00	
					<b>\$7,560.00</b>	

**14TH TO 15TH ALTERNATIVE 3 SUB-TOTAL: \$16,140.00**  
**CONTINGENCY (20%): \$3,228.00**  
**PRELIMINARY ENGINEERING (10%) \$1,940.00**  
**CONSTRUCTION ENGINEERING (12%) \$2,330.00**  
**14TH TO 15TH ALTERNATIVE 3 TOTAL: \$23,640.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

15TH STREET TO 16TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$5,500.00	\$5,500.00	
					<b>\$5,500.00</b>	
<b>CONCRETE</b>						
M3400488	Concrete Curb Ramp, (9" Thick)	2	Each	\$2,000.00	\$4,000.00	
					<b>\$4,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	8	Each	\$225.00	\$1,800.00	
M4004101	Sign Post (P-1) Square Perforated	94	LF	\$15.00	\$1,410.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	28	SF	\$25.00	\$700.00	
					<b>\$4,910.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	405	LF	\$1.00	\$405.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	502	LF	\$1.00	\$502.00	
M4004701	Pavement Marking, Preformed	29	Each	\$140.00	\$4,060.00	
					<b>\$4,967.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$320.00	\$320.00	
M3513141	Electrical Conduit	630	LF	\$18.00	\$11,340.00	
M3513271	Pull Box, Roadway Lighting	4	Each	\$350.00	\$1,400.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	4	Each	\$2,500.00	\$10,000.00	
M3515032	Foundation, Roadway Light Pole	4	Each	\$600.00	\$2,400.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$25,660.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	1660	SY	\$3.00	\$4,980.00	
					<b>\$4,980.00</b>	

**15TH TO 16TH ALTERNATIVE 1 SUB-TOTAL: \$52,017.00**  
**CONTINGENCY (20%): \$10,403.40**  
**PRELIMINARY ENGINEERING (10%) \$6,250.00**  
**CONSTRUCTION ENGINEERING (12%) \$7,500.00**  
**15TH TO 16TH ALTERNATIVE 1 TOTAL: \$76,180.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

15TH STREET TO 16TH STREET - ALTERNATIVE 2A						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$20,000.00	\$20,000.00	
					<b>\$20,000.00</b>	
<b>CONCRETE</b>						
M3000050	Asphalt Concrete Pavement Milling	14936	SF	\$2.00	\$29,872.00	
M3210201	Asphalt Concrete	187	Ton	\$85.00	\$15,895.00	
M3400488	Concrete Curb Ramp, (9" Thick)	2	Each	\$2,000.00	\$4,000.00	
					<b>\$49,767.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$2,500.00	\$2,500.00	
					<b>\$6,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	8	Each	\$225.00	\$1,800.00	
M4004101	Sign Post (P-1) Square Perforated	94	LF	\$15.00	\$1,410.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	28	SF	\$25.00	\$700.00	
					<b>\$4,910.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	8700	SF	\$10.00	\$87,000.00	
M4004701	Pavement Marking, Preformed	35	Each	\$140.00	\$4,900.00	
					<b>\$91,900.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$320.00	\$320.00	
M3513141	Electrical Conduit	630	LF	\$18.00	\$11,340.00	
M3513271	Pull Box, Roadway Lighting	4	Each	\$350.00	\$1,400.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	4	Each	\$2,500.00	\$10,000.00	
M3515032	Foundation, Roadway Light Pole	4	Each	\$600.00	\$2,400.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$25,660.00</b>	

**15TH TO 16TH ALTERNATIVE 2A SUB-TOTAL:** **\$198,237.00**  
**CONTINGENCY (20%):** **\$39,647.40**  
**PRELIMINARY ENGINEERING (10%):** **\$23,790.00**  
**CONSTRUCTION ENGINEERING (12%):** **\$28,550.00**  
**15TH TO 16TH ALTERNATIVE 2A TOTAL:** **\$290,230.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

15TH STREET TO 16TH STREET - ALTERNATIVE 2B						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$32,500.00	\$32,500.00	
					<b>\$32,500.00</b>	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	1660	SY	\$3.00	\$4,980.00	
M3100000	Aggregate Base Course	185	CY	\$45.00	\$8,325.00	
M3245050	Pervious Concrete Pavement	14936	SF	\$15.50	\$231,508.00	
M3400488	Concrete Curb Ramp_(9" Thick)	2	Each	\$2,000.00	\$4,000.00	
					<b>\$248,813.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$2,500.00	\$2,500.00	
					<b>\$6,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	8	Each	\$225.00	\$1,800.00	
M4004101	Sign Post (P-1) Square Perforated	94	LF	\$15.00	\$1,410.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	28	SF	\$25.00	\$700.00	
					<b>\$4,910.00</b>	
<b>STRIPING</b>						
M4004701	Pavement Marking, Preformed	35	Each	\$140.00	\$4,900.00	
					<b>\$4,900.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$320.00	\$320.00	
M3513141	Electrical Conduit	630	LF	\$18.00	\$11,340.00	
M3513271	Pull Box, Roadway Lighting	4	Each	\$350.00	\$1,400.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	4	Each	\$2,500.00	\$10,000.00	
M3515032	Foundation, Roadway Light Pole	4	Each	\$600.00	\$2,400.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$25,660.00</b>	

**15TH TO 16TH ALTERNATIVE 2B SUB-TOTAL: \$322,783.00**  
**CONTINGENCY (20%): \$64,556.60**  
**PRELIMINARY ENGINEERING (10%): \$38,740.00**  
**CONSTRUCTION ENGINEERING (12%): \$46,490.00**  
**15TH TO 16TH ALTERNATIVE 2B TOTAL: \$472,570.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

15TH STREET TO 16TH STREET - ALTERNATIVE 3A						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$21,500.00	\$21,500.00	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	2261	SY	\$3.00	\$6,783.00	
M3100000	Aggregate Base Course	252	CY	\$45.00	\$11,340.00	
M3210201	Asphalt Concrete	382	Ton	\$85.00	\$32,470.00	
M3400400	Concrete Sidewalk, Std. Detail P-1230	7640	SF	\$6.00	\$45,840.00	
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	1292	LF	\$25.00	\$32,300.00	
					<b>\$136,733.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$2,500.00	\$2,500.00	
					<b>\$6,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	8	Each	\$225.00	\$1,800.00	
M4004101	Sign Post (P-1) Square Perforated Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	92	LF	\$15.00	\$1,380.00	
M4004413	Reflective Sheeting	26	SF	\$25.00	\$650.00	
					<b>\$4,830.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	302	LF	\$1.00	\$302.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	550	LF	\$1.00	\$550.00	
M4004701	Pavement Marking, Preformed	16	Each	\$140.00	\$2,240.00	
					<b>\$3,092.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$320.00	\$320.00	
M3513141	Electrical Conduit	630	LF	\$18.00	\$11,340.00	
M3513271	Pull Box, Roadway Lighting	4	Each	\$350.00	\$1,400.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	4	Each	\$2,500.00	\$10,000.00	
M3515032	Foundation, Roadway Light Pole	4	Each	\$600.00	\$2,400.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$25,660.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$15,000.00	\$15,000.00	
					<b>\$15,000.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	

**15TH TO 16TH ALTERNATIVE 3A SUB-TOTAL: \$214,315.00**  
**CONTINGENCY (20%): \$42,863.00**  
**PRELIMINARY ENGINEERING (10%): \$25,720.00**  
**CONSTRUCTION ENGINEERING (12%): \$30,870.00**  
**RIGHT-OF-WAY ACQUISITION (9,600 SQUARE FEET): \$72,000.00**  
**15TH TO 16TH ALTERNATIVE 3A TOTAL: \$385,770.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

15TH STREET TO 16TH STREET - ALTERNATIVE 3B						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$33,000.00	\$33,000.00	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	2261	SY	\$3.00	\$6,783.00	
M3100000	Aggregate Base Course	252	CY	\$45.00	\$11,340.00	
M3210201	Asphalt Concrete	244	Ton	\$85.00	\$20,740.00	
M3245050	Pervious Concrete Pavement	7337	SF	\$15.50	\$113,723.50	
M3400400	Concrete Sidewalk, Std. Detail P-1230	7640	SF	\$6.00	\$45,840.00	
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	1292	LF	\$25.00	\$32,300.00	
					<b>\$238,726.50</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$3,500.00	\$3,500.00	
M3507001	Misc. Removals	1	Lump	\$2,500.00	\$2,500.00	
					<b>\$6,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	8	Each	\$225.00	\$1,800.00	
M4004101	Sign Post (P-1) Square Perforated	92	LF	\$15.00	\$1,380.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	26	SF	\$25.00	\$650.00	
					<b>\$4,830.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	302	LF	\$1.00	\$302.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	550	LF	\$1.00	\$550.00	
M4004701	Pavement Marking, Preformed	16	Each	\$140.00	\$2,240.00	
					<b>\$3,092.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$320.00	\$320.00	
M3513141	Electrical Conduit	630	LF	\$18.00	\$11,340.00	
M3513271	Pull Box, Roadway Lighting	4	Each	\$350.00	\$1,400.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	4	Each	\$2,500.00	\$10,000.00	
M3515032	Foundation, Roadway Light Pole	4	Each	\$600.00	\$2,400.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	1	Each	\$200.00	\$200.00	
					<b>\$25,660.00</b>	
<b>DRAINAGE</b>						
M6189700	Low Impact Drainage	1	Lump	\$15,000.00	\$15,000.00	
					<b>\$15,000.00</b>	
<b>LANDSCAPE</b>						
M1043001	Landscape Improvements	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$1,500.00</b>	

**15TH TO 16TH ALTERNATIVE 3B SUB-TOTAL:** \$327,808.50  
**CONTINGENCY (20%):** \$65,561.70  
**PRELIMINARY ENGINEERING (10%):** \$39,340.00  
**CONSTRUCTION ENGINEERING (12%):** \$47,210.00  
**RIGHT-OF-WAY ACQUISITION (9,600 SQUARE FEET):** \$72,000.00  
**15TH TO 16TH ALTERNATIVE 3B TOTAL:** \$551,930.00

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

16TH STREET TO 18TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$9,500.00	\$9,500.00	
					<b>\$9,500.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	7	Each	\$225.00	\$1,575.00	
M4004101	Sign Post (P-1) Square Perforated	81	LF	\$15.00	\$1,215.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	14	SF	\$25.00	\$350.00	
					<b>\$4,140.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1283	LF	\$1.00	\$1,283.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	3776	LF	\$1.00	\$3,776.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	496	LF	\$1.00	\$496.00	
M4004701	Pavement Marking, Preformed	8	Each	\$140.00	\$1,120.00	
					<b>\$6,675.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$640.00	\$640.00	
M3513141	Electrical Conduit	1265	LF	\$18.00	\$22,770.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00	
					<b>\$51,810.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	5759	SY	\$3.00	\$17,277.00	
					<b>\$17,277.00</b>	

**16TH TO 18TH ALTERNATIVE 1 SUB-TOTAL: \$91,402.00**  
**CONTINGENCY (20%): \$18,280.40**  
**PRELIMINARY ENGINEERING (10%): \$10,970.00**  
**CONSTRUCTION ENGINEERING (12%): \$13,170.00**  
**16TH TO 18TH ALTERNATIVE 1 TOTAL: \$133,830.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

18TH STREET TO 20TH STREET - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$10,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00	
M4004101	Sign Post (P-1) Square Perforated	47	LF	\$15.00	\$705.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	14	SF	\$25.00	\$350.00	
					<b>\$2,955.00</b>	
<b>STRIPING</b>						
M3505050	Remove Existing Striping	1060	LF	\$1.00	\$1,060.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	3148	LF	\$1.00	\$3,148.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	604	LF	\$1.00	\$604.00	
M4004701	Pavement Marking, Preformed	53	Each	\$140.00	\$7,420.00	
M4004710	Preformed Thermoplastic - Green	403	SF	\$7.25	\$2,921.75	
M4004720	Flexible Traffic Delineator	15	Each	\$10.00	\$150.00	
					<b>\$15,303.75</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$640.00	\$640.00	
M3513141	Electrical Conduit	1265	LF	\$18.00	\$22,770.00	
M3513271	Pull Box, Roadway Lighting	8	Each	\$350.00	\$2,800.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	8	Each	\$2,500.00	\$20,000.00	
M3515032	Foundation, Roadway Light Pole	8	Each	\$600.00	\$4,800.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	4	Each	\$200.00	\$800.00	
					<b>\$51,810.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	5920	SY	\$3.00	\$17,760.00	
					<b>\$17,760.00</b>	

**16TH TO 18TH ALTERNATIVE 1 SUB-TOTAL: \$99,828.75**  
**CONTINGENCY (20%): \$19,965.75**  
**PRELIMINARY ENGINEERING (10%) \$11,980.00**  
**CONSTRUCTION ENGINEERING (12%) \$14,380.00**  
**16TH TO 18TH ALTERNATIVE 1 TOTAL: \$146,160.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET / 20TH STREET INTERSECTION - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$6,000.00	\$6,000.00	
					<b>\$6,000.00</b>	
<b>CONCRETE</b>						
M3400488	Concrete Curb Ramp. (9" Thick)	2	Each	\$2,000.00	\$4,000.00	
					<b>\$4,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,500.00	\$2,500.00	
M3507001	Misc. Removals	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$4,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00	
M4004101	Sign Post (P-1) Square Perforated	50	LF	\$15.00	\$750.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	30	SF	\$25.00	\$750.00	
					<b>\$3,400.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	1209	SF	\$10.00	\$12,090.00	
M4004701	Pavement Marking, Preformed	22	Each	\$140.00	\$3,080.00	
					<b>\$15,170.00</b>	
<b>SPEED TABLE</b>						
M3000050	Asphalt Concrete Pavement Milling	4119	SF	\$2.00	\$8,238.00	
M3210201	Asphalt Concrete	78	Ton	\$85.00	\$6,630.00	
					<b>\$14,868.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$3,000.00	\$3,000.00	
					<b>\$3,000.00</b>	

20TH INTERSECTION ALTERNATIVE 1 SUB-TOTAL: **\$50,438.00**  
 CONTINGENCY (20%): **\$10,087.60**  
 PRELIMINARY ENGINEERING (10%): **\$6,060.00**  
 CONSTRUCTION ENGINEERING (12%): **\$7,270.00**  
 20TH INTERSECTION ALTERNATIVE 1 TOTAL: **\$73,860.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET / 20TH STREET INTERSECTION - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$6,000.00	\$6,000.00	
					<b>\$6,000.00</b>	
<b>CONCRETE</b>						
M3400488	Concrete Curb Ramp. (9" Thick)	3	Each	\$2,000.00	\$6,000.00	
					<b>\$6,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,500.00	\$2,500.00	
M3507001	Misc. Removals	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$4,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	2	Each	\$225.00	\$450.00	
M4004101	Sign Post (P-1) Square Perforated	25	LF	\$15.00	\$375.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	17	SF	\$25.00	\$425.00	
M4005401	Rapid Rectangular Flashing Beacon	2	Each	\$3,500.00	\$7,000.00	
					<b>\$9,250.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	1209	SF	\$10.00	\$12,090.00	
M4004701	Pavement Marking, Preformed	22	Each	\$140.00	\$3,080.00	
					<b>\$15,170.00</b>	
<b>SPEED TABLE</b>						
M3000050	Asphalt Concrete Pavement Milling	4119	SF	\$2.00	\$8,238.00	
M3210201	Asphalt Concrete	78	Ton	\$85.00	\$6,630.00	
					<b>\$14,868.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$3,000.00	\$3,000.00	
					<b>\$3,000.00</b>	

**20TH INTERSECTION ALTERNATIVE 2 SUB-TOTAL: \$58,288.00**  
**CONTINGENCY (20%): \$11,657.60**  
**PRELIMINARY ENGINEERING (10%) \$7,000.00**  
**CONSTRUCTION ENGINEERING (12%) \$8,400.00**  
**20TH INTERSECTION ALTERNATIVE 2 TOTAL: \$85,350.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

20TH PLACE; OAK STREET TO THOMAS ROAD - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$19,000.00	\$19,000.00	
					<b>\$19,000.00</b>	
<b>CONCRETE</b>						
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
					<b>\$8,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,000.00	\$2,000.00	
M3507001	Misc. Removals	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$4,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	17	Each	\$225.00	\$3,825.00	
M4004101	Sign Post (P-1) Square Perforated	198	LF	\$15.00	\$2,970.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	49	SF	\$25.00	\$1,225.00	
					<b>\$9,020.00</b>	
<b>STRIPING</b>						
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	468	LF	\$1.00	\$468.00	
M4004701	Pavement Marking, Preformed	36	Each	\$140.00	\$5,040.00	
					<b>\$5,508.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$320.00	\$320.00	
M3513141	Electrical Conduit	2700	LF	\$18.00	\$48,600.00	
M3513271	Pull Box, Roadway Lighting	34	Each	\$350.00	\$11,900.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	4	Each	\$2,500.00	\$10,000.00	
M3515032	Foundation, Roadway Light Pole	4	Each	\$600.00	\$2,400.00	
M3515035	Illuminated Bollard	30	Each	\$1,500.00	\$45,000.00	
M3515036	Foundation, Illuminated Bollard	30	Each	\$600.00	\$18,000.00	
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	6	Each	\$550.00	\$3,300.00	
					<b>\$139,520.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	1479	SY	\$3.00	\$4,437.00	
					<b>\$4,437.00</b>	

**OAK TO THOMAS ALTERNATIVE 1 SUB-TOTAL \$189,485.00**  
**CONTINGENCY (20%): \$37,897.00**  
**PRELIMINARY ENGINEERING (10%) \$22,740.00**  
**CONSTRUCTION ENGINEERING (12%) \$27,290.00**  
**OAK TO THOMAS ALTERNATIVE 1 TOTAL \$277,420.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

20TH PLACE; OAK STREET TO THOMAS ROAD - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$20,500.00	\$20,500.00	
					<b>\$20,500.00</b>	
<b>CONCRETE</b>						
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
					<b>\$8,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$2,000.00	\$2,000.00	
M3507001	Misc. Removals	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$4,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	21	Each	\$225.00	\$4,725.00	
M4004101	Sign Post (P-1) Square Perforated	222	LF	\$15.00	\$3,330.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	76	SF	\$25.00	\$1,900.00	
					<b>\$10,955.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	1224	LF	\$1.00	\$1,224.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	1845	LF	\$1.00	\$1,845.00	
M4004701	Pavement Marking, Preformed	8	Each	\$140.00	\$1,120.00	
M4004710	Preformed Thermoplastic - Green	1483	SF	\$7.25	\$10,751.75	
M4004720	Flexible Traffic Delineator	62	Each	\$10.00	\$620.00	
					<b>\$15,560.75</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$320.00	\$320.00	
M3513141	Electrical Conduit	2700	LF	\$18.00	\$48,600.00	
M3513271	Pull Box, Roadway Lighting	34	Each	\$350.00	\$11,900.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	4	Each	\$2,500.00	\$10,000.00	
M3515032	Foundation, Roadway Light Pole	4	Each	\$600.00	\$2,400.00	
M3515035	Illuminated Bollard	30	Each	\$1,500.00	\$45,000.00	
M3515036	Foundation, Illuminated Bollard	30	Each	\$600.00	\$18,000.00	
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	6	Each	\$550.00	\$3,300.00	
					<b>\$139,520.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	1479	SY	\$3.00	\$4,437.00	
					<b>\$4,437.00</b>	

**OAK TO THOMAS ALTERNATIVE 2B SUB-TOTAL \$202,972.75**  
**CONTINGENCY (20%): \$40,594.55**  
**PRELIMINARY ENGINEERING (10%) \$24,360.00**  
**CONSTRUCTION ENGINEERING (12%) \$29,230.00**  
**OAK TO THOMAS ALTERNATIVE 2B TOTAL \$297,160.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

THOMAS ROAD INTERSECTION - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$2,000.00	\$2,000.00	
					<b>\$2,000.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	6	Each	\$225.00	\$1,350.00	
M4004101	Sign Post (P-1) Square Perforated	75	LF	\$15.00	\$1,125.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	18	SF	\$25.00	\$450.00	
M4005401	Rapid Rectangular Flashing Beacon	2	Each	\$3,500.00	\$7,000.00	
					<b>\$10,925.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	134	LF	\$1.00	\$134.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	87	LF	\$1.00	\$87.00	
M4004701	Pavement Marking, Preformed	4	Each	\$140.00	\$560.00	
					<b>\$781.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	296	SY	\$3.00	\$888.00	
					<b>\$888.00</b>	

THOMAS INTERSECTION ALTERNATIVE 1 SUB-TOTAL: **\$16,594.00**  
 CONTINGENCY (20%): **\$3,318.80**  
 PRELIMINARY ENGINEERING (10%): **\$2,000.00**  
 CONSTRUCTION ENGINEERING (12%): **\$2,390.00**  
 THOMAS INTERSECTION ALTERNATIVE 1 TOTAL: **\$24,310.00**



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

THOMAS ROAD INTERSECTION - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$15,000.00	\$15,000.00	
					<b>\$15,000.00</b>	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	336	SY	\$3.00	\$1,008.00	
M3100000	Aggregate Base Course	84	CY	\$45.00	\$3,780.00	
M3210201	Asphalt Concrete	114	Ton	\$85.00	\$9,690.00	
M3400010	Concrete Median	1142	SF	\$5.00	\$5,710.00	
M3400400	Concrete Sidewalk, Std. Detail P-1230	2967	SF	\$6.00	\$17,802.00	
M3400488	Concrete Curb Ramp, (9" Thick)	6	Each	\$2,000.00	\$12,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	457	LF	\$25.00	\$11,425.00	
M3402222	Concrete Single Curb, Std. Detail 222, Type "B"	107	LF	\$25.00	\$2,675.00	
M3500053	Remove Concrete Curb and Gutter	402	LF	\$5.00	\$2,010.00	
M3500054	Remove Concrete Curb	200	LF	\$5.00	\$1,000.00	
M3500058	Remove Sidewalk	2997	SF	\$4.00	\$11,988.00	
					<b>\$79,088.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$7,500.00	\$7,500.00	
M3507001	Misc. Removals	1	Lump	\$2,500.00	\$2,500.00	
					<b>\$10,000.00</b>	
<b>SIGNAL</b>						
M3518021	Thomas Road Intersection Traffic Signal Modifications	1	Lump	\$20,000.00	\$20,000.00	
					<b>\$20,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	6	Each	\$225.00	\$1,350.00	
M4004101	Sign Post (P-1) Square Perforated	75	LF	\$15.00	\$1,125.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	18	SF	\$25.00	\$450.00	
M4005401	Rapid Rectangular Flashing Beacon	2	Each	\$3,500.00	\$7,000.00	
					<b>\$10,925.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	134	LF	\$1.00	\$134.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	174	LF	\$1.00	\$174.00	
M4004701	Pavement Marking, Preformed	8	Each	\$140.00	\$1,120.00	
					<b>\$1,428.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$10,000.00	\$10,000.00	
					<b>\$10,000.00</b>	

THOMAS INTERSECTION ALTERNATIVE 2 SUB-TOTAL: **\$146,441.00**  
 CONTINGENCY (20%): **\$29,288.20**  
 PRELIMINARY ENGINEERING (10%): **\$17,580.00**  
 CONSTRUCTION ENGINEERING (12%): **\$21,090.00**  
 THOMAS INTERSECTION ALTERNATIVE 2 TOTAL: **\$214,400.00**

# OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

THOMAS ROAD INTERSECTION - ALTERNATIVE 3						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$33,000.00	\$33,000.00	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	143	SY	\$3.00	\$429.00	
M3100000	Aggregate Base Course	36	CY	\$45.00	\$1,620.00	
M3210201	Asphalt Concrete	49	Ton	\$85.00	\$4,165.00	
M3400400	Concrete Sidewalk, Std. Detail P-1230	4114	SF	\$6.00	\$24,684.00	
M3400488	Concrete Curb Ramp, (9" Thick)	2	Each	\$2,000.00	\$4,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	514	LF	\$25.00	\$12,850.00	
M3500053	Remove Concrete Curb and Gutter	402	LF	\$5.00	\$2,010.00	
M3500054	Remove Concrete Curb	330	LF	\$5.00	\$1,650.00	
M3500058	Remove Sidewalk	3939	SF	\$4.00	\$15,756.00	
					<b>\$67,164.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$7,500.00	\$7,500.00	
M3507001	Misc. Removals	1	Lump	\$2,500.00	\$2,500.00	
					<b>\$10,000.00</b>	
<b>SIGNAL</b>						
M3518022	Thomas Road Intersection Traffic Signal	1	Lump	\$200,000.00	\$200,000.00	
					<b>\$200,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	2	Each	\$225.00	\$450.00	
M4004101	Sign Post (P-1) Square Perforated	23	LF	\$15.00	\$345.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	6	SF	\$25.00	\$150.00	
					<b>\$1,945.00</b>	
<b>STRIPING</b>						
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	380	LF	\$1.00	\$380.00	
M4004701	Pavement Marking, Preformed	36	Each	\$140.00	\$5,040.00	
					<b>\$5,420.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$10,000.00	\$10,000.00	
					<b>\$10,000.00</b>	

**THOMAS INTERSECTION ALTERNATIVE 3 SUB-TOTAL:** **\$327,529.00**  
**CONTINGENCY (20%):** **\$65,505.80**  
**PRELIMINARY ENGINEERING (10%):** **\$39,310.00**  
**CONSTRUCTION ENGINEERING (12%):** **\$47,170.00**  
**THOMAS INTERSECTION ALTERNATIVE 3 TOTAL:** **\$479,520.00**

## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

20TH STREET; THOMAS ROAD TO GRAND CANAL - ALTERNATIVE 1						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$10,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>CONCRETE</b>						
M3500058	Remove Sidewalk	424	SF	\$4.00	\$1,696.00	
M3400488	Concrete Curb Ramp, (9" Thick)	4	Each	\$2,000.00	\$8,000.00	
					<b>\$9,696.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	5	Each	\$225.00	\$1,125.00	
M4004101	Sign Post (P-1) Square Perforated	64	LF	\$15.00	\$960.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	47	SF	\$25.00	\$1,175.00	
					<b>\$4,260.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	2302	SF	\$10.00	\$23,020.00	
M3505050	Remove Existing Striping	1866	LF	\$1.00	\$1,866.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	151	LF	\$1.00	\$151.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	2236	LF	\$1.00	\$2,236.00	
M4004701	Pavement Marking, Preformed	30	Each	\$140.00	\$4,200.00	
M4004710	Preformed Thermoplastic - Green	1230	SF	\$7.25	\$8,917.50	
M4004720	Flexible Traffic Delineator	132	Each	\$10.00	\$1,320.00	
					<b>\$41,710.50</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$260.00	\$260.00	
M3513141	Electrical Conduit	475	LF	\$18.00	\$8,550.00	
M3513271	Pull Box, Roadway Lighting	3	Each	\$350.00	\$1,050.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	3	Each	\$2,500.00	\$7,500.00	
M3515032	Foundation, Roadway Light Pole	3	Each	\$600.00	\$1,800.00	
					<b>\$19,160.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	3943	SY	\$3.00	\$11,829.00	
					<b>\$11,829.00</b>	

THOMAS TO CANAL ALTERNATIVE 1 SUB-TOTAL \$98,655.50  
 CONTINGENCY (20%): \$19,731.10  
 PRELIMINARY ENGINEERING (10%) \$11,840.00  
 CONSTRUCTION ENGINEERING (12%) \$14,210.00  
 THOMAS TO CANAL ALTERNATIVE 1 TOTAL \$144,440.00



## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

20TH STREET; THOMAS ROAD TO GRAND CANAL - ALTERNATIVE 2						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$12,000.00	\$12,000.00	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	60	SY	\$3.00	\$180.00	
M3100000	Aggregate Base Course	15	CY	\$45.00	\$675.00	
M3210201	Asphalt Concrete	21	Ton	\$85.00	\$1,785.00	
M3400010	Concrete Median	969	SF	\$5.00	\$4,845.00	
M3400488	Concrete Curb Ramp, (9" Thick)	8	Each	\$2,000.00	\$16,000.00	
M3402222	Concrete Single Curb, Std. Detail 222, Type "B"	114	LF	\$25.00	\$2,850.00	
M3500054	Remove Concrete Curb	150	LF	\$5.00	\$750.00	
					<b>\$27,085.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,000.00	\$1,000.00	
					<b>\$2,000.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	5	Each	\$225.00	\$1,125.00	
M4004101	Sign Post (P-1) Square Perforated	64	LF	\$15.00	\$960.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	47	SF	\$25.00	\$1,175.00	
					<b>\$4,260.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	2302	SF	\$10.00	\$23,020.00	
M3505050	Remove Existing Striping	1866	LF	\$1.00	\$1,866.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	2184	LF	\$1.00	\$2,184.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	2236	LF	\$1.00	\$2,236.00	
M4004701	Pavement Marking, Preformed	30	Each	\$140.00	\$4,200.00	
M4004710	Preformed Thermoplastic - Green	1230	SF	\$7.25	\$8,917.50	
M4004720	Flexible Traffic Delineator	127	Each	\$10.00	\$1,270.00	
					<b>\$43,693.50</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$260.00	\$260.00	
M3513141	Electrical Conduit	475	LF	\$18.00	\$8,550.00	
M3513271	Pull Box, Roadway Lighting	3	Each	\$350.00	\$1,050.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	3	Each	\$2,500.00	\$7,500.00	
M3515032	Foundation, Roadway Light Pole	3	Each	\$600.00	\$1,800.00	
					<b>\$19,160.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	3918	SY	\$3.00	\$11,754.00	
					<b>\$11,754.00</b>	

**THOMAS TO CANAL ALTERNATIVE 2 SUB-TOTAL: \$119,952.50**  
**CONTINGENCY (20%): \$23,990.50**  
**PRELIMINARY ENGINEERING (10%): \$14,400.00**  
**CONSTRUCTION ENGINEERING (12%): \$17,280.00**  
**THOMAS TO CANAL ALTERNATIVE 2 TOTAL: \$175,630.00**

**OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY**

<b>20TH STREET; THOMAS ROAD TO GRAND CANAL - ALTERNATIVE 3</b>						
BID ITEM	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL	COMMENTS
<b>MISCELLANEOUS ITEMS</b>						
M1081000	Mobilization	1	Lump	\$22,000.00	\$22,000.00	
<b>CONCRETE</b>						
M3010001	Subgrade Preparation	319	SY	\$3.00	\$957.00	
M3100000	Aggregate Base Course	80	CY	\$45.00	\$3,600.00	
M3210201	Asphalt Concrete	108	Ton	\$85.00	\$9,180.00	
M3400400	Concrete Sidewalk, Std. Detail P-1230	7362	SF	\$6.00	\$44,172.00	
M3400488	Concrete Curb Ramp, (6" Thick)	5	Each	\$2,000.00	\$10,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	714	LF	\$25.00	\$17,850.00	
M3500053	Remove Concrete Curb and Gutter	712	LF	\$5.00	\$3,560.00	
M3500058	Remove Sidewalk	5479	SF	\$4.00	\$21,916.00	
					<b>\$111,235.00</b>	
<b>REMOVALS</b>						
M3454200	Adjust Utilities	1	Lump	\$1,000.00	\$1,000.00	
M3507001	Misc. Removals	1	Lump	\$1,500.00	\$1,500.00	
					<b>\$2,500.00</b>	
<b>SIGNING</b>						
M3500309	Sign Removal	1	Lump	\$1,000.00	\$1,000.00	
M4004100	Perforated Sign Post Foundation	4	Each	\$225.00	\$900.00	
M4004101	Sign Post (P-1) Square Perforated	52	LF	\$15.00	\$780.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	44	SF	\$25.00	\$1,100.00	
					<b>\$3,780.00</b>	
<b>STRIPING</b>						
M3420000	Stamped Asphalt	2302	SF	\$10.00	\$23,020.00	
M3505050	Remove Existing Striping	2116	LF	\$1.00	\$2,116.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	151	LF	\$1.00	\$151.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	2637	LF	\$1.00	\$2,637.00	
M4004701	Pavement Marking, Preformed	30	Each	\$140.00	\$4,200.00	
					<b>\$32,124.00</b>	
<b>LIGHTING</b>						
M3505030	Conductors	1	Lump	\$260.00	\$260.00	
M3513141	Electrical Conduit	475	LF	\$18.00	\$8,550.00	
M3513271	Pull Box, Roadway Lighting	3	Each	\$350.00	\$1,050.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	3	Each	\$2,500.00	\$7,500.00	
M3515032	Foundation, Roadway Light Pole	3	Each	\$600.00	\$1,800.00	
					<b>\$19,160.00</b>	
<b>DRAINAGE</b>						
M6189600	Drainage Items	1	Lump	\$10,000.00	\$10,000.00	
					<b>\$10,000.00</b>	
<b>PAVEMENT REHAB</b>						
M3310300	Micro-Surfacing	3647	SY	\$3.00	\$10,941.00	
					<b>\$10,941.00</b>	

THOMAS TO CANAL ALTERNATIVE 3 SUB-TOTAL \$211,740.00  
 CONTINGENCY (20%): \$42,348.00  
 PRELIMINARY ENGINEERING (10%): \$25,410.00  
 CONSTRUCTION ENGINEERING (12%): \$30,500.00  
 THOMAS TO CANAL ALTERNATIVE 3 TOTAL \$310,000.00



## APPENDIX 3 – AVERAGE UNIT COSTS

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## OAK STREET BICYCLE CORRIDOR IMPROVEMENT STUDY

OAK STREET AVERAGE UNIT COSTS				
BID ITEM	DESCRIPTION	UNIT	UNIT COST	COMMENTS
M1043001	Landscape Improvements	Lump		
M1081000	Mobilization	Lump		
M3000050	Asphalt Concrete Pavement Milling	SF	\$2.00	
M3010001	Subgrade Preparation	SY	\$3.00	
M3100000	Aggregate Base Course	CY	\$45.00	
M3210201	Asphalt Concrete	Ton	\$85.00	
M3211200	Speed Hump	Each	\$500.00	
M3245050	Pervious Concrete Pavement	SF	\$15.50	
M3310300	Micro-Surfacing	SY	\$3.00	
M3400010	Concrete Median	SF	\$5.00	
M3400400	Concrete Sidewalk, Std. Detail P-1230	SF	\$6.00	
M3400488	Concrete Curb Ramp, (9" Thick)	Each	\$2,000.00	
M3402200	Combined Concrete Curb and Gutter, Standard Detail 220, Type 'A'	LF	\$25.00	
M3402222	Concrete Single Curb, Std. Detail 222, Type "B"	LF	\$25.00	
M3420000	Stamped Asphalt	SF	\$10.00	
M3454200	Adjust Utilities	Lump		
M3500053	Remove Concrete Curb and Gutter	LF	\$5.00	
M3500054	Remove Concrete Curb	LF	\$5.00	
M3500058	Remove Sidewalk	SF	\$4.00	
M3500303	Remove and Salvage Existing HAWK Signal	Lump		
M3500309	Sign Removal	Lump		
M3505030	Conductors	Lump		
M3505050	Remove Existing Striping	LF	\$1.00	
M3507001	Misc. Removals	Lump		
M3513141	Electrical Conduit	LF	\$18.00	
M3513271	Pull Box, Roadway Lighting	Each	\$350.00	
M3515009	Traffic Signal Face (Pedestrian) (Bikes OK) (LED) Signal	Each	\$750.00	
M3515010	Pedestrian Pole and Push Button	Each	\$5,000.00	
M3515031	Roadway Light Pole, Mast Arm, and Luminaire	Each	\$2,500.00	
M3515032	Foundation, Roadway Light Pole	Each	\$600.00	
M3515035	Illuminated Bollard	Each	\$1,500.00	
M3515036	Foundation, Illuminated Bollard	Each	\$600.00	
M3515049	Remove and Salvage Existing Luminaire and Mast Arm (Utility Pole Mounted)	Each	\$200.00	
M3515051	Remove and Salvage Existing Luminaire, Mast Arm, and Pole	Each	\$550.00	
M3518010	Relocate Pedestrian Pole and Push Button	Each	\$3,500.00	
M3518020	7th Street Intersection Traffic Signal	Lump		
M3518021	Thomas Road Intersection Traffic Signal Modifications	Lump		
M3518022	Thomas Road Intersection Traffic Signal	Lump		
M4004100	Perforated Sign Post Foundation	Each	\$225.00	
M4004101	Sign Post (P-1) Square Perforated	LF	\$15.00	
M4004413	Flat Sheet Sign Panels (Type IX or XI or equivalent) Retro-Reflective Sheeting	SF	\$25.00	
M4004501	Pavement Marking (White Thermoplastic) (0.060") 4"	LF	\$1.00	
M4004502	Pavement Marking (Yellow Thermoplastic) (0.060") 4"	LF	\$1.00	
M4004701	Pavement Marking, Preformed	Each	\$140.00	
M4004710	Preformed Thermoplastic - Green	SF	\$7.25	
M4004720	Flexible Traffic Delineator	Each	\$10.00	
M4005401	Rapid Rectangular Flashing Beacon	Each	\$3,500.00	
M6189600	Drainage Items	Lump		
M6189700	Low Impact Drainage	Lump		