

**CITY OF PHOENIX  
ELECTRIC VEHICLE AD HOC COMMITTEE:  
CITY FLEET AND CITY CHARGING**



**Summary Minutes from Tuesday, Oct. 19, 2021  
Tuesday, Oct. 19, 2021**

Virtual Meeting – Via WebEx

Ad Hoc Committee Members Present

Delbert Hawk  
Kathy Knoop  
Caryn Potter  
Katherine Stainken

Ad Hoc Committee Members Absent

Councilwoman Yassamin Ansari - Chair

City Staff Present

Karen Apple, Sustainability	David Benton, City Attorney	Kimberly Brown, Aviation
Keith Carbajal, Public Works	Albert Crespo, Transit	Sarah Demory, Aviation
Joe Giudice, Public Works	Mark Hartman, Sustainability	Sandra Hoffman, Planning & Dev
Aaron Kane, District 7 Office	Karl Kaseoru, ITS	Joe Bowar, Transit
Chad Makovsky, Aviation	Gabriel Nevarez, Aviation	Karen Peters, City Manager's Office
Lawrence Polk, Parks	Jesus Sapien, Transit	Larry Smallwood, City Manager's Office
Felissa Washington Smith, Public Works	Jessica Yates, Public Works	Sarah Carter, Aviation
Roberto Valentin, Transit		

**1. Call to Order**

Karen Peters, Deputy City Manager, called the subcommittee meeting to order at 5:07 p.m.

Karen Apple, Electric Vehicle Program Manager, did roll call. Councilwoman Yassamin Ansari was not in attendance. All other committee members were present.

**2. Approval of Minutes – Sept. 21, 2021**

Committee Member Delbert Hawk motioned the approval, Committee Member Kathy Knoop seconded the motion. Vote to approve the minutes passed unanimously with no opposition.

**3. News and Announcements**

Ms. Apple provided news and announcements, which included: battery pack cost is 87% lower than in 2018; the auto industry plans to inject \$500B into the market through electric vehicle (EV) investments; ABB launched the worlds fastest charger; and Norway is planning to phase out gasoline-powered vehicles.

Committee Member Knoop provided stats specific to EV adoption in Colorado. Stating that Colorado is at 5% adoption, whereas Arizona is at 2%. When considering population size, Arizona should be able to increase this.

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**4. Comparable Cities, City Fleet and City Infrastructure**

Ms. Peters introduced Mark Hartman, Chief Sustainability Officer, who transitioned the conversation to department specific updates and outcomes of benchmarking efforts.

Mr. Hartman first confirmed that Phoenix has modeled several prototypes after Colorado. He then transitioned the discussion over to Ms. Apple to discuss benchmarking themes and recommendations pertaining to the EV roadmaps.

Ms. Apple provided overview of different cities benchmarked specific to roadmaps. Common city fleet themes included: fleet transition plans, internal department education, formalized use training, fleet pilots, and various incentive/funding methods. Common fleet charging themes included: installation timelines, L2 pilots, funding programs, investment/budget strategies, and specific charging needs for diverse fleet types. Based on this benchmarking study, the city has several recommendations pertaining to fleet charging and city fleet composition. Many of these recommendations align with the committee's deliverables.

Ms. Peters responded that this benchmarking information will be stored on the sharepoint page for review.

Committee Member Caryn Potter thanked the city for reviewing these roadmaps and providing summary of findings.

**5. Overview of City Fleet and Fleet Replacement Processes**

Mr. Hartman introduced Public Works Department (PWD) staff to highlight the details pertaining to the composition of the citywide fleet. Felissa Washington Smith, Assistant Public Works Director, was introduced to discuss this topic further.

Ms. Washington Smith responded that this presentation will be completed jointly with the Aviation Department and Public Transit Department. The focus of the discussion was regarding strategy to move the city forward in reaching EV goals. Phoenix has been a leader in green fleet initiatives for over 30 years now. The city is involved with the Valley of the Sun Clean Cities initiative, which is a collaborative partnership to help move from petroleum to clean options. Currently, 52% of city fleet is fueled by clean alternatives. Ms. Washington Smith then introduced Keith Carbajal, Deputy Public Works Director, who then redirected the conversation towards the current inventory of city fleet.

Mr. Carbajal provided facts about the inventory of 7,745 fleet vehicles, of which 5,611 are considered light duty. Potential replacement units have been assessed through the city replacement model which considers age, miles driven and maintenance expense. He mentioned that different EV models available could be

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considered when making replacement decisions. Chevy Bolt and Nissan LEAF are the two models currently under contract. Mr. Carbajal then shared a cost of ownership model which compared the Chevy Bolt to a Chevy Malibu.

Committee Member Potter asked clarifying questions about the data shared in the cost of ownership model. She wanted to know where the data came from and whether avoided cost due to warranty was included in the projections.

Mr. Carbajal responded that the data highlighted was derived from the city's fleet asset management system and that the figures provided excluded warranty cost as these vehicles were sent to the dealership for correction. The city aims to have a carbon neutral fleet by 2050, and to achieve this there are several objectives to consider including charging capacity and replacement schedules. If the city purchased 22-23 EV vehicles per year the city would achieve its goal of replacing 200 units with EV by 2030. When considering charging needs, there are two charging considerations: level one and level two. Level two requires more infrastructure.

Ms. Washington Smith transitioned to discuss procurement strategy. There is opportunity to expand our EV fleet through new legislation and by expanding contract capacity. This strategy will rely on partnerships and by leveraging existing replacement funding. For enterprise departments, supplemental funding may be available. PWD is ready to expand the EV fleet and believes that the city has a responsibility to address operational challenges; as an example, vehicles must meet towing and weight requirements. During the last meeting, training requirements was discussed, and we are addressing this through the proposed action plan. The action plan has four key elements: expansion of EV vehicles and charging infrastructure; exploring/increasing funding opportunities; surveying duty cycles; and identifying infrastructure challenges and total cost of ownership.

Committee Member Knoop asked whether this action plan included timelines as to when the city will look at new market opportunities, specific to vehicles available.

Ms. Washington Smith responded that currently we do not have a frequency defined, although we are always looking for additional options as they come available.

Committee Member Potter asked within this action plan if pilot projects will be established, specific to charging infrastructure and duty cycles for specific equipment types. She would like to better understand city's involvement with pilots with testing new technology.

Ms. Washington Smith mentioned that the Office of Sustainability, Mayors Office, and City Manager's Office, to name a few, are always exploring and sharing new

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opportunities. We have also done tours to look at specific equipment to explore options that meet the operational need. Ms. Washington Smith then introduced Joe Giudice, Public Works Director, to comment more about specific pilots.

Mr. Giudice elaborated that conducting pilot programs is a great area of strength for the Public Works Department. As an example, there has been different occasions where we looked at alternative options for our refuse truck fleet. The city is very much committed to continuing this practice and are open to testing as determined appropriate.

Committee Member Potter suggested that these types of pilots are crucial, especially when considering the EV roadmap. For future discussions it would be warranted to include these types of studies in the roadmap including how other pilots in the past have assisted the department in finding alternative solutions.

Mr. Hartman confirmed that by looking at the data alone there are opportunities to engage in these studies, but we must always consider the procurement process in place. He then introduced Jesus Sapien, Public Transit Director.

Mr. Sapien provided an overview of the current transit fleet composition and the history behind the regional transit system. Transit services are outsourced on a cost per mile basis. Their heavy-duty fleet runs on 100% clean burning fuel (CNG or Biodiesel are council approved). They switched from LNG to CNG, which was an investment from an infrastructure standpoint, specific to fuel supplies. They have a diverse fleet which is important in the event of a fuel source disruption. 85% of their fleet is federally funded, the federal government will need to be involved in this process. 15% of the fleet is funded by Proposition 400 (regional transit funding, county tax). County tax expires in the upcoming years, but they are looking to extend. Regional discussions are needed if there is a different direction. Must follow specific criteria for vehicle retirement when looking at replacement cycles. There are challenges with electric bus batteries, the department has studied the impacts; for example, the range of current fleet is 400-500 miles, recent Battery Electric Buses (BEB) tested range from 150-180 miles. Other considerations, charging time requirements and maintenance practices. Cost of units are also highlighted, which considers the increased unit price, need for charging infrastructure, battery replacement, and the current price of CNG.

Committee Member Potter asked for clarification regarding cost of infrastructure assumptions highlighted and whether any reduced EV rate plans with utilities were considered. Utilities are partnering with local governments to prioritize their specific needs. Demand charge holidays should also be considered.

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Mr. Sapien confirmed that these conversations are going on. He provided an example that Tucson recently tested electric buses and they partnered with a local utility. Phoenix also plans to meet to have these discussions. These figures do not take into consideration the power capacity needed to upfit these garages with the required infrastructure. He also mentioned route charging needs to be considered.

Committee Member Potter suggested conducting this research and asked whether the Take Charge AZ program has been considered.

Mr. Hartman commented that the city aims to future proof and these considerations need to be discussed when working with a utility.

Mr. Sapien mentioned that the change in infrastructure will be significant, that is why this consultant study we are working on will be important. Other challenges to highlight are the reliability/durability of BEBs; on-boarding considering the hotter climates; peak loads; communication requirements; and wheelchair lift requirements. FTA spare ratio is limited to 20% of fleet peak needs and considering labor market, the city will need to increase the fleet to account for the reduction in range while understanding that retaining labor has been more difficult. Mr. Sapien then transitioned to discuss EV opportunities including, Green Bus Request for Proposal (RFP), grant funding for EV implementation, and regional pilots we can study.

Committee Member Stainken asked how figures specific to battery replacement cost were derived, considering the reduction in battery prices. She asked whether total cost of ownership was considered in these studies.

Mr. Sapien responded that city staff that oversee operating and maintenance data provided these figures. As for the total cost of ownership, this would be a robust study that would take a regional approach since operations are outsourced. We would need to work with the private sector partners closely to get accurate data.

Committee Member Stainken recommends that the city continue to apply for grants and engage with Arizona Senators as there is much happening at a federal level.

Mr. Sapien responded that the city works very closely with Senator offices.

Committee Member Potter asked about Green Bus RFP specifications, specifically if anything was being excluded.

Mr. Sapien responded that the vision is to have a small pilot fleet outside of current technology (which could include EV, hybrid, or hydrogen powered units) and to put them into service on a long-term basis to study how they operate on different routes, with different passenger loads, and during different seasons.

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Committee Member Potter asked about Transit's CNG RFP and how this solicitation correlates to the EV readiness roadmap. Based on her understanding, 250 buses will be purchased, she would like the city to provide clarity.

Mr. Sapien responded that this RFP is to replenish our fleet as they need to replace 40-60 buses per year to ensure successful operating performance. Cost projections proposed are based on the replacement schedule over the life of the contract. This contract is a year-to-year contract and depending on what is coming due we replace older buses first. There is no commitment to exhaust all 5-years of the contract and if there are better solutions that come available, the switch can be made.

Committee Member Potter expressed concern that the city will be locked into a contract, like a stranded asset, and she wants to avoid this. She recommends we have a longer conversation about procurement practices and language in the RFP that may discourage other conversations about alternative solutions.

Sarah Demory, Assistant Aviation Director, was then introduced to discuss the Aviation Departments activities and how they can accommodate the increased community demand for EV. She started by providing the structure of the department, specifically that they are a self-supporting enterprise. Most fleet is located at the Phoenix Sky Harbor Airport; although, they have three airport systems operating 24/7. In total, they have 851 pieces of equipment, 207 being traditional light duty vehicles. Aviation is working closely with PWD, as PWD manages the procurement process for their vehicles. Aviation has three electric vehicles currently but are looking for other potential candidates which will be included in a comprehensive schedule. Aviation charging infrastructure is being studied in partnership with a 3<sup>rd</sup> party consultant.

Committee Member Knoop thanked all the presenters for providing a baseline overview. She was excited to hear that Aviation has an EV motorcycle. She also mentioned that EV half ton pick-up trucks are coming, and to keep in mind, anytime you are doing parking lot construction, that conduit should be placed to support future charging infrastructure.

**6. Recommended Actions – Workplan Development**

Ms. Peters proposes that this committee work to develop a work plan that recommends deliverables by the Jan. 2022 deadline.

Mr. Hartman transitioned to share the workplan with the committee to highlight what has been combined this far. If there are items that the committee would like to plan for, specifically items with budget implications, these should be addressed. He proposes that subcommittee members be assigned each of the three topics to put

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them into a format that supports the final recommendation. Topics outlined in the workplan include purchase of electric fleet vehicles, purchase of charging infrastructure, and city employee charging infrastructure. Would like two subcommittee members assigned to each topic area.

Committee Members Knoop and Hawk are willing to work on the fleet charging infrastructure topic.

Committee Members Stainken and Knoop are willing to support the topic regarding purchase of both heavy duty and light duty vehicles. Committee Members Stainken suggested that this topic be modified to include two separate categories for heavy and light duty. Committee Members Stainken and Knoop will also support employee charging infrastructure.

Mr. Giudice mentioned that we already have a policy specific to fleet utilization which includes an annual review process. We can share this for review.

Mr. Hartman responded that any guidance to support EV purchases should be provided for review. He also mentioned that Ms. Apple will be providing a general template to assist with this workplan development.

**7. Public Comment**

No public comments

**8. Future Agenda Items**

Ms. Apple mentioned that at the next meeting the city planned to share a presentation from service providers and from Phoenix's Convention Center. It was also suggested that some EV training be provided. Next Ad Hoc meeting is scheduled Nov. 5, 2021.

**9. Adjournment**

Ms. Peters adjourned the meeting at 6:52 p.m.