



*City of Arts & Innovation*

# City Council Memorandum

---

**TO: HONORABLE MAYOR AND CITY COUNCIL      DATE: SEPTEMBER 5, 2023**

**FROM: COMMUNITY & ECONOMIC DEVELOPMENT      WARDS: ALL**  
**DEPARTMENT**

**SUBJECT: CONCEPTUAL FRAMEWORK PROPOSAL TO ATTRACT THE FIRST ALL-ELECTRIC AUTONOMOUS SHUTTLE ADVANCED MANUFACTURING FACILITY IN THE UNITED STATES, ALONG WITH OHMIO'S INTERNATIONAL HEADQUARTERS, POINT OF SALE AND RESEARCH AND DEVELOPMENT CENTER, AND DEPLOY THREE (3) ALL-ELECTRIC AUTONOMOUS SHUTTLES IN A TWO-YEAR PILOT IN THE CITY OF RIVERSIDE - SUPPLEMENTAL APPROPRIATION**

**ISSUE:**

Approve the Conceptual Framework Proposal between the City of Riverside and Ohmio, Inc. for the establishment of its international headquarters, advanced manufacturing and point of sale for all-electric, autonomous vehicle shuttles in the City of Riverside and demonstrate the viability and safety of the all-electric autonomous shuttles in a two-year pilot program.

**RECOMMENDATIONS:**

That the City Council:

1. Approve the Conceptual Framework Proposal; and
2. Authorize the City Manager, or his designee, to prepare an agreement per the parameters of the Conceptual Framework Proposal; and
3. By at least five affirmative votes, authorize a supplemental appropriation in an amount not to exceed \$2.5 million inclusive of a \$1.5 million capital lease or \$1.4 million purchase for three (3) all-electric autonomous shuttles, "safety drivers" not to exceed \$400,000 and related costs including, but not limited to, maintenance and repair, electricity, and insurance; and
4. Authorize the City Manager, or his designee, to negotiate and execute the agreement per the Proposal with Ohmio, Inc.

**BACKGROUND:**

May 2023 – City staff conducted a series of meetings with Ohmio, a New Zealand based, all-electric autonomous shuttle advanced manufacturing company, that is incorporated in the state of Delaware in the United States.

June 2023 – Ohmio completed a successful pilot deployment of all-electric, autonomous shuttles at JFK Airport in New York and notified the City that they were selected by the San Bernardino County Transportation Authority, as a pre-qualified Operating Systems Provider for the Tunnel to Ontario International Airport Project.

June 2023 – The City assisted with site selection services, identifying sites that met Ohmio’s needs to manufacture all-electric autonomous shuttles. On Ohmio’s second visit to the City of Riverside, City staff toured the available sites with Ohmio representatives. A site of interest was identified, and discussions are underway for a potential multi-year lease of a 30,000-square foot facility in the City of Riverside.

June/July 2023 – Further discussions were held to clarify a conceptual framework that would include Ohmio relocating its international headquarters, advanced manufacturing, research, and development, and point of sale to the City of Riverside. Also included in the framework was the notion of the City serving as a testbed through a pilot deployment of all-electric autonomous shuttles in the City of Riverside.

July 2023 – Ohmio hired a broker and submitted a letter of intent to lease a 30,000-square foot building at 1075 Mount Vernon Avenue in the City of Riverside (see photo).



July 2023 – City staff met with representatives from the University of California, Riverside (“UCR”), UCR’s Center for Environmental Research and Technology, Greater Riverside Chambers of Commerce, Riverside County Transportation Commission, Riverside Transit Authority, Riverside County Office of Economic Development, and the State of California Office of Business and Economic Development. All have expressed enthusiasm and excitement for this innovative project given this framework would be bringing advanced manufacturing, jobs, research and development and an international headquarters to the City of Riverside.

August 2023 – The Economic Development, Placemaking, and Branding/ Marketing Committee met to consider a recommendation to the City Council to approve the Conceptual Framework Proposal and to direct staff to prepare an agreement based on the terms outlined in the proposal. The committee made a motion in favor of the recommendation however, requested staff perform additional research on the purchase of the shuttles instead of the lease option; and for Ohmio to consider extending the building lease term to five (5) years instead of three (3).

City staff contacted Ohmio to gather additional information on the sale of the shuttles and to discuss the possibility of extending the lease for the building to a five-year term. The principal for Ohmio indicated a purchase option for the shuttles was available, which would provide a cost savings of approximately \$100,000 to the City. However, this option would require an upfront payment of \$1.4 million as opposed to lease payments in the amount of \$1.5 million being spread throughout the agreement term. Ohmio also expressed a willingness to consider an extension of the initial lease term for the property to five (5) years, helping to ensure a longer initial period for Ohmio to provide economic benefit to the city.

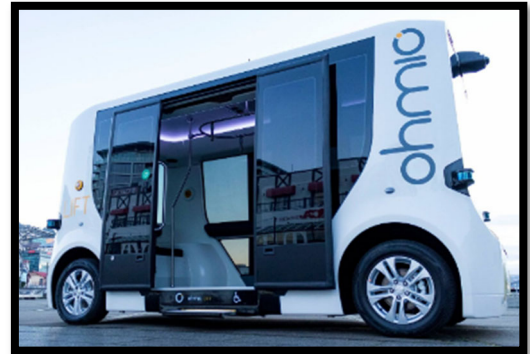
During the Committee meeting, several questions were also posed to staff about the operation of the shuttles i.e., dedicated lane, number of shuttles to deploy, and shuttle speed. Staff offered additional information in response to these questions and highlighted that the shuttles do not need

to have a dedicated lane as they will not be on a fixed track system and their program software allows them to operate on existing road networks. As for the deployment of the shuttles, it was shared that they do not need to travel together, and that the rate of speed will vary based on State licensing requirements.

August 2023 – Staff made a presentation on the Ohmio Conceptual Framework Proposal to the Greater Riverside Chambers of Commerce Economic Development Council. Members expressed excitement for the project and voted unanimous on a motion to support the project.

## **DISCUSSION:**

Ohmio is a leader in the development and deployment of fully electric autonomous shuttles. Ohmio shuttles operate globally, including in New Zealand, Australia, South Korea, Luxembourg, and New York, and the company has recently secured new contracts in the Netherlands, the UK, and Finland. In addition, Ohmio was recently selected as selected as a pre-qualified Operating Systems Provider for the Tunnel to Ontario International Airport Project.



**Why Riverside?** From the outset of our discussions, Ohmio principals emphasized that the City of Riverside is their top relocation choice because it is a talent rich environment, home to cutting edge research and development, and a City with a demonstrated desire to innovate. UCR, Cal Baptist University, La Sierra University, and Riverside Community College all offer degrees aligned with the needs of the company. Ohmio was struck with the alignment, synergy, and nature of research and development being performed by UCR and the California Air Resources Board Southern California Headquarters campus.

By building on the current successes that attracted Ohmio to Riverside, the City can realize lasting economic benefits for the entire community. Here are a few ways this framework can make an impact to the City of Riverside:

**Local Advanced Manufacturing** Advanced manufacturing plays an important role within the local economy, supporting high wage jobs and small businesses within the expanded global supply chain. The Milken Institute estimates that for every job created in advanced manufacturing, 2.5 jobs are created in other sectors. Ohmio plans to establish an advanced manufacturing facility in the City of Riverside. The first locally produced vehicles could be available by Spring 2024, stimulating the local economy and ensuring rapid delivery and support for future vehicles.

This facility would be the only autonomous shuttle advanced manufacturer in the United States. Ohmio is uniquely positioned to cater to a variety of projects nationwide, given their status as the only US-based shuttle advanced manufacturer. Their ongoing projects overseas provide then the opportunity to export Riverside-made products, expanding market reach and contributing to the local economy.

**Jobs** Ohmio estimates they will start with 7-10 jobs in the first year and create between 25-30 jobs over a three-year period, with positions spanning from engineers to technicians. These new roles would provide valuable professional development opportunities and the ability to customize solutions to meet client needs.

**Supply Chain** Ohmio intends to incorporate American technologies into its shuttles, contributing to the 'Americanization' of the autonomous vehicle industry. This effort is anticipated to attract other autonomous vehicle part suppliers to Riverside offering business to business relationships, gradually transforming the city into a hub for autonomous vehicle advanced manufacturing and related activities.

**Research and Development** The proposed research and development center will open avenues for collaborative research projects with UCR and other local universities. This will position local universities at the forefront of autonomous vehicle technology research, attracting funding opportunities, and enabling the universities to shape the future of this transformative field. The continued growth of innovative industry sectors like autonomous vehicles would rely on the excellence of our local educational institutions and will attract and retain talent and create high paying jobs and career pathways for residents. Ohmio will foster also industry-academic ties by offering unique internship programs at the research and development center and advanced manufacturing facility. Students, from a range of disciplines, will gain practical, hands-on experience, aiding their professional development and enhancing the quality of academic offerings.

The Conceptual Framework Proposal (“Proposal”) allows for the testing and validation of safety and efficient transportation management. Autonomous vehicles, with their precision and consistent performance, have the potential to reduce traffic accidents caused by human error, enhancing safety for all road users, and contributing to a safer Riverside. Autonomous shuttles can contribute to better traffic management and congestion reduction in the city, improving overall transportation efficiency.

**International Headquarters** Headquarters draw visitors. Strategic functions thrive on face-to-face contact, and headquarters are the natural place of convening. They host client, board, and team meetings, as well as internal and public-facing events. Each aspect attracts business visits, often from overseas. This puts Riverside on the global map as a hub for innovation.

**Point of Sale** Ohmio’s point of sale worldwide would be the City of Riverside adding economic benefit to the community. The average price of an all-electric autonomous shuttle is \$300,000, which translates to \$26,250 to the City for each vehicle sold at the 8.75% sales tax. Selling 10 shuttles would generate \$262,500, selling 25 shuttles generates \$656,250 and should they sell 50 shuttles the City would receive \$1,312,500. Should this product “take off”, this establishment has the potential to become the one of the City’s largest sales tax generators.

**Adaptive Reuse** Nurturing the growth of tech industries of the future has environmental and quality of life advantages as well. The transition of industrial and warehousing spaces into clean and green technology corridors has the ability to reduce pollution and local traffic congestion while transforming the City into a job center with high paying, hi-tech job opportunities.

**Sustainability** Ohmio’s all-electric autonomous shuttles have climate and air quality benefits. The shuttles have zero tail pipe emissions and cleaner transportation means cleaner air and better health. Using all-electric vehicles help to reduce greenhouse gas emissions positively contributing to air quality and support sustainability efforts like reaching carbon neutrality.

**City Brand** The City of Riverside would grow its brand as a leader in the global shift towards a sustainable, clean, and green economy with Ohmio’s international headquarters, manufacturing facility and research and development center. Ohmio’s all-electric autonomous shuttle also showcases a commitment to innovation. The presence of a forward-thinking autonomous vehicle company like Ohmio could draw talent and investment to Riverside, enhancing its attractiveness

as a place to live, work and explore.

**Pilot Project** A fully electric autonomous shuttle pilot project (“Pilot Project”) is proposed, one that can serve as an amenity for residents, employees, and visitors. The Pilot Project will be a demonstration utilizing City streets as a test bed. The Pilot Project will not effect core Riverside Transit Agency services. At this time, no routes have been identified but areas of interest include the City’s 6-mile Innovation Corridor along University Avenue between Downtown and UCR given the embedded technology, university campuses, hospital campuses and areas throughout the City not currently being served by transit.



The Proposal provides for the leasing of three (3) shuttles for a two-year period at a cost of up to \$1,500,000 for the capital lease or \$1,400,000 for the purchase of three (3) shuttles, as well as, other related costs including, but not limited to, safety “drivers”, maintenance, electricity, electric chargers, and insurance. Alternative funding sources are being explored that may involve grants – both Federal and State, public-private partnerships, leveraging opportunities with our strategic partners, and charging for tickets for riding the shuttle. The cost centers depicted in the table below are projected estimates that may be refined and updated as a part of the negotiation process with an agreement presented to Committee and Council for review and consideration.

**Table – Project Proposal Estimated Cost**

Topic	Unit	Total Cost	Note
<b>Lease Shuttles</b>		\$1,500,000	City leases 3 shuttles
or	3	or	or
<b>Purchase Shuttles</b>		\$1,400,000	Purchase 3 shuttles
<b>Safety “Drivers”</b>	3	\$390,000	\$65,000 per year X 3 shuttles X 2 years = \$390,000
<b>Electricity</b>	60 kilowatts per day	\$35,610	\$5,935 per shuttle annual X 3 shuttles X 2 years = \$35,610 (Estimated to be 20,000 kilowatts per day / per shuttle X 3 = 60,000 kilowatts per day)
<b>Electric Chargers</b>	3	\$60,000	Furnish and install a Level 2 charger at the Corp Yard would be approximately \$5 - \$10,000 per each unit X 3 shuttles X 2 years = \$60,000 + Overnight slow charge with a level 2 charger looking at \$5 per charge cycle per van

<b>Maintenance</b>	3	\$65,370	\$10,895 annual cost X 3 shuttles X 2 years = \$65,370
<b>Insurance</b>	3	\$199,020	Insurance estimates have not been collected at time of publication
<b>TOTAL</b>		<b>\$2,250,000</b>	<b>Estimated cost over 2-year lease term</b>
		<b>\$2,150,000</b>	<b>Estimated cost over 2-year purchase</b>

The state-of-the-art electric autonomous shuttles will provide safe, efficient, and sustainable transportation solutions that will enhance access to transportation, showcasing the City’s commitment to innovation while contributing to our “living lab” reputation.

**STRATEGIC PLAN ALIGNMENT:**

This item contributes to **Strategic Priority 3 – Economic Opportunity** (Access to Transportation, Choices, Green Fleet and Systems and Smart City Ecosystem); **Strategic Priority 4 – Environmental Stewardship** (Implement proactive policies and measures to ensure all residents breath healthy and clean air, Implement the requisite measures to achieve citywide carbon neutrality no later than 2040); and **Strategic Priority 6 – Infrastructure, Mobility and Connectivity** (Access to Transportation, Choices, Green Fleet and Systems and Smart City Ecosystem).

This item aligns with each of the five Cross-Cutting Threads as follows:

1. **Community Trust** – The Proposal allows for the testing and validation of safety and efficient transportation management. Autonomous vehicles, with their precision and consistent performance, have the potential to reduce traffic accidents caused by human error, enhancing safety for all road users and contributing to a safer Riverside. Autonomous shuttles can contribute to better traffic management and congestion reduction in the city, improving overall transportation efficiency.
2. **Equity** – Ohmio’s all-electric autonomous shuttles have climate and air quality benefits. The shuttles have zero tail pipe emissions and cleaner transportation means cleaner air and better health for all.
3. **Fiscal Responsibility** – The Proposal includes Ohmio locating its international headquarters, manufacturing facility, research and development and its point of sale, which includes the City receiving 8.75% (sales tax) of each shuttle sold worldwide. The Proposal helps to showcase the viability of shuttle, allows for real world research and provides a valuable service to patrons utilizing the shuttle. There may be the potential to collect fares for shuttle rides, apply for grants, receive funding for transportation and/or lease the shuttles to private partners to help defer the costs.
4. **Innovation** – The Proposal positions Riverside as a testbed for new and emerging technology. The Ohmio all-electric, autonomous shuttles provide an inventive and sustainable solution to meet the need for “first-mile/last-mile” connection for transit riders in the community and around the world.
5. **Sustainability & Resiliency** – The deployment of a zero-emission shuttle adds to the changing transportation needs of the community. With the addition of autonomous vehicles, Riverside will have the opportunity to rethink urban design and planning, leading to more efficient use of road space and potentially reducing the need for parking

infrastructure. Using all-electric vehicles will also help to reduce greenhouse gas emissions positively contributing to air quality and support sustainability efforts like reaching carbon neutrality.

**FISCAL IMPACT:**

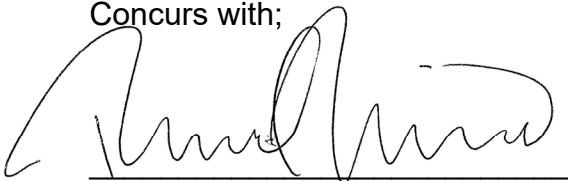
The total fiscal impact of this action is up to \$2,500,000. Cost refinement is ongoing for various pieces of this project, but the expectation is that the total two-year cost will not exceed \$2,500,000.

Ohmio's point of sale worldwide would be the City of Riverside, adding economic benefit to the community. The average price of an all-electric autonomous shuttle is \$300,000, which translates to \$26,250 to the City for each vehicle sold at the 8.75% sales tax. There may also be an opportunity for grant funding to further offset costs.

Costs and revenue offsets are predicated on the outcome of negotiations between the City and the vendor. At this stage, there are potential opportunities to offset costs, as stated above, and those will be explored through the negotiation process. Further updates and firmer numbers for cost estimates will be brought forward to Council after the City has formally engaged with the vendor.

Prepared by: Jennifer A. Lilley, Community and Economic Development Director  
Certified as to availability of funds: Kristie Thomas, Finance Director/Assistant Chief Financial Officer  
Approved by: Rafael Guzman, Assistant City Manager  
Approved as to form: Phaedra A. Norton, City Attorney

Concurs with;



Ronaldo Fierro, Chair  
Economic Development, Placemaking, and Branding/Marketing Committee

Attachments:

1. Proposal
2. Presentation