

April 20th, 2023

City of Irvine Great Park Transit Circulation and Demand Study

Submitted to:



Submitted by:





April 20, 2023

City of Irvine Andrew Douglass City Manager's Office 1 Civic Center Plaza Irvine, California 92606

RE: Great Park Transit Circulation and Demand Study

We are pleased to submit this proposal for a transit demand study for the Great Park area. As many people can attest, Great Park is a flagship destination within the City of Irvine that is undergoing further transformation over the coming 30 years that will elevate it to a major regional and national destination. Recently planned recreation and entertainment options will contribute to the rich tapestry of the City, but they also need to have an exemplary plan to facilitate the trips, with a focus on sustainable mobility options to (1) create seamless travel for visitors and (2) minimize traffic impacts to the surrounding neighborhoods.

As such, this document outlines a proposed scope of work to review and address travel demand challenges and circulation for the future uses of the site. The study will assess existing and future land uses, determine corresponding travel patterns, recommend operating equipment, and create a set of transit recommendations to mitigate traffic conditions and efficiently move people through the Great Park area. While this work will focus on improvements to transit circulation, the team will also consider how the recommended improvements will interact with all mobility options provided in the Great Park area.

Sam Schwartz is a national leader in helping clients shape how mobility and technology-enabled changes in transportation can be managed and adopted to maximize multimodal transportation goals. We have been at the forefront of the industry in applying innovative, data-driven analyses to understand how the existing transportation system can be enhanced through emerging technology. Our ultimate goal is to create an actionable plan to support smarter investment decisions for Great Park. Informed by deep and meaningful stakeholder input, as well as the technical rigor of our engineers, planners, data scientists, and emerging mobility experts, our plans provide implementable roadmaps that integrate traditional transportation modes with new mobility technologies and service models.

I speak for our entire team when I say that we are enthusiastic about the opportunity to support of Great Park and the City of Irvine with this important and innovative project. We are fully committed to working with you and important stakeholders to create a plan that enables the community to move more equitably, healthfully, and sustainably over the decades to come.

Sincerely,

Joe Iacobucci Principal + West Coast General Manager



Table of Contents

About Sam Schwartz	3
Proposed Approach	8
Proposed Budget	13
Proposed Schedule	13
Proposed Project Team	14



About Sam Schwartz

With over 27 years of practice on a wide array of complex transportation issues and development strategies, Sam Schwartz is the national leader in multimodal urban mobility. Our team has unparalleled technical and problem-solving expertise and an approach that is distinguished by the integration of emerging trends and technologies with the fundamentals of sustainable transportation systems. In an era when daily changes in behavior, technology, and funding disrupt traditional transportation modes, we have established a reputation for pioneering projects that help cities, states, and regions both envision and implement the mobility changes they want to see reflected in their communities.

Our experts help clients make data-driven, smart planning decisions to achieve their long-term transportation, sustainability, and equity goals. Our planning processes are rooted in analysis and modeling that provide clarity and resolution, such as transportation demand modeling for congestion pricing studies and quantitative analysis of safety and equity implications. Sam Schwartz has eight offices around the United States: New York City, Washington D.C., Los Angeles, Chicago, Oakland, Tampa, Seattle, and Jersey City.

Our team includes former city transportation and transit professionals that understand the challenges in change management and how to navigate municipal policies to successfully implement emerging technology projects.

New Mobility Solutions

Sam Schwartz is a national leader in helping clients shape how shared mobility and other technologyenabled changes in transportation can be managed and adopted to maximize multimodal transportation goals. We have been at the forefront of the industry in applying innovative, data-driven analyses to understand how the existing transportation system can be enhanced through emerging technology. For the City of Irvine, our goal is to create an actionable plan to support smarter investment decisions. Informed by deep and meaningful stakeholder input, as well as the technical rigor of our engineers, planners, data scientists, and emerging mobility experts, our plans provide implementable roadmaps that integrate traditional transportation modes with new mobility technologies and service models.

We have worked in this space for over a decade and our team's collective experience in emerging mobility plans and pilots is unmatched. We created the first city-led holistic emerging mobility framework in Seattle, and since that success we have helped public agencies launch pilots to operationalize this work across the country. Key to our success is bringing together stakeholders, providing education that creates buy-in, and producing plans that focus on implementation.

Our experience in this work includes:

- Planning and implementing King County Metro's first on-demand microtransit pilot;
- Designing AV shuttle and smart mobility programs for major developments such as The Point of the Mountain (Utah), Ford's Michigan Central Mobility Innovation District (Michigan), and Sunnyside Yards (New York);
- City of San Jose's Emerging Mobility Study & Access and Mobility Plan; and



• Other foundational New Mobility studies for clients in a variety of contexts, as demonstrated by the map and table on the following pages.

In addition, our team has decades of experience working on innovative transit network plans, transit priority corridors, first- and last-mile plans (including microtransit and micromobility), and MaaS/MOD strategies. Use of big data (including location-based data) and innovative planning and analytical tools are key elements of these plans. We have also built sophisticated, custom data analytics and performance dashboard tools.

Nationwide Project Experience



Sam Schwartz's transit, new mobility, and autonomous vehicle experience spans the country.

Note: numbers on map correspond to projects listed in table on the following page.



Dates	Project Name and Description
	1. Cavnue Smart Corridor
2020- present	Sam Schwartz is supporting a feasibility analysis to inform the development of a first-of-its- kind connected corridor on I-94 and Michigan Avenue, connecting Detroit to Ann Arbor. Sam Schwartz is assisting with design guidance and analyses to help yield greater safety and accessibility to allow existing roadways to handle more passengers while fairly and equitably providing critical access in communities with long-standing transportation and transit gaps. The project would be "future-proofed" and evolve over time to enable different use cases, including personal vehicles, transit, and freight.
	2. City of San Jose Access and Mobility Study and Emerging Mobility Study
2020- present	"Sam Schwartz is working with the City of San Jose to develop a planning tool to evaluate the impact of a range of transportation scenarios on key metrics such as VMT reduction, mode shift, and user experience. Sam Schwartz is also working with the City to develop a structure to assess, implement and evaluate emerging mobility services.
	3. MTC Future Mobility Program, Task Order 1: Regional Forum Planning and Delivery
2016- 2017	Sam Schwartz led a study for the MTC, in partnership with SACOG, SCAG, and SANDAG, to study key policy issues presented by shared mobility and emerging technology trends. The team also assessed the potential impacts of these organizations, and identified appropriate roles for the state's largest Metropolitan Planning Organizations to respond to new mobility challenges as a comprehensive team.
	4. LADOT Taxi and Private Transportation Vehicle Study
2018- present	Sam Schwartz is conducting a comprehensive study to replace the current taxi franchise system with a new oversight framework that incorporates and regulates taxis, TNCs, microtransit, and other forms of private transportation services under a single, flexible system.
	5. King County Metro/Ford Smart Mobility, Microtransit First/Last mile Access to Park and Ride
2017- 2019	Sam Schwartz provided program management services to Ford Smart Mobility to plan and facilitate execution of this pilot project to provide microtransit service for first/last mile on- demand service to East Gate Park and Ride, a designated mobility hub resulting from the Seattle New Mobility Playbook.
	6. Miami-Dade County Shared Mobility Study
2018- 2019	Sam Schwartz performed this study to help the County envision the future of public transportation in Miami-Dade and to develop recommendations to integrate emerging shared mobility solutions into the planning and development of the six key corridors of the Strategic Miami Area Rapid Transit (SMART) Plan.
2015- 2017	7. Seattle DOT and King County Metro New Mobility Playbook
	The City of Seattle and King County Metro contracted Sam Schwartz to create a forward- thinking and proactive comprehensive shared mobility plan to integrate emerging technology and services with the existing transportation system to create a mobility network that is efficient, equitable, safe, and sustainable. It was the first plan of its kind in the US and set the bar for many plans that have followed.
	8. Sound Transit Technology Advisor
2018- present	Sam Schwartz is part of an exclusive task order contract for Sound Transit, advising the agency on transportation innovations, emerging mobility, and data analytics. The first task order for this contract focused on peer agency interviews, with the aim of identifying innovative organizational structures and mechanisms to facilitate pilot projects.



Dates	Project Name and Description
	9. Divvy Bike Share Planning and Implementation Support
2012- present	Sam Schwartz has supported Chicago DOT and Lyft on the planning, implementation, community engagement and evaluation of Chicago's bike share program since its initial launch in 2013 and through its evolution to incorporate electric and free-floating bikes.
	10. Chicago Shared E-Scooter Pilot Program Management
2020	Working with the Chicago DOT, Sam Schwartz oversaw the design, permitting, day-to-day operations, vendor management, and evaluation of Chicago's 2020 shared e-scooter pilot program, which saw more than half a million trips over the course of four months.
	11. Citi Bike Planning and Implementation Support (2019-Present)
2019- present	Sam Schwartz has supported the New York City DOT and Lyft on determining station locations and public engagement as Citi Bike, one of the largest bike share systems in the country, expands into Upper Manhattan and the South Bronx.
	12. Lyft Resilient Streets
2020	Sam Schwartz partnered with Lyft to develop and articulate a compelling vision for how city streets can be reimagined to prioritize safe, equitable, low-carbon mobility and developed concepts for key corridors in Chicago, New York City, and Washington, D.C.
	13. New York City 80x50
2015- 2016	Sam Schwartz led the transportation elements of New York City's Roadmap to 80x50, the City's plan to reduce greenhouse gas emissions 80% by 2050. Our team identified, evaluated, and prioritized a wide range of programs and policies and developed an action plan for implementation.
	14. Seattle Climate and Congestion Program Evaluation
2020- 2021	Sam Schwartz worked with the Seattle DOT to develop a scenario planning and evaluation tool to assess the costs, VMT reduction, and GHG reduction benefits of the City's transportation policies, programs, and investments. SDOT is using the tool to recalibrate its transportation priorities to achieve an 80% reduction in transportation emissions and have 9 out of every 10 trips be zero-emission by 2030.
	15. GR Forward
2014- 2018	Sam Schwartz has worked with the City of Grand Rapids and Downtown Grand Rapids, Inc. to identify how transportation can support the transformation of the City's downtown into a vibrant, mixed-use destination. Our team has developed and evaluated concepts for a downtown circulator, shared parking strategies, and share micromobility programs.
	16. Sunnyside Yard Master Plan
2018- 2021	Sam Schwartz was part of the team that developed the master plan for Sunnyside Yard in Queens, the largest master planned development in New York City history. Sam Schwartz led the mobility elements of the plan, including technical analysis and physical design, including strategies to reduce car usage, enhance public transit, and leverage emerging technologies.
	17. North Branch Framework Plan
2016- 2018	Sam Schwartz was part of the team that developed the North Branch Framework Plan, a guide for the redevelopment of 760-acres of former industrial land along the Chicago River. Sam Schwartz created strategies and identified projects necessary to create a neighborhood oriented towards walking, biking, and transit.



Dates	Project Name and Description
	18. Michigan Central Mobility Innovation District
2019- 2020	Sam Schwartz was part of the team that worked with Ford to develop plans for a an inclusive, vibrant, walkable mobility innovation district centered around the iconic Michigan Central Station in Detroit's Corktown neighborhood. Sam Schwartz identified and analyzed opportunities to redesign streets and the circulation network, right-size parking, and create a 20-minute neighborhood.
	19. Zipcar Impact Report (various cities)
2021- present	Sam Schwartz is working with Zipcar to analyze how car share usage has shifted with the COVID-19 pandemic and help illustrate Zipcar's evolving role in creating sustainable, multimodal communities
	20. The Point of the Mountain Smart Mobility Study
2020- 2021	Sam Schwartz led the development of an integrated smart mobility program that will create a one-car community that minimizes car dependence, reduces congestion, and supports regional transit investments and air quality goals.



Proposed Approach

Task 1. Project Management

Sam Schwartz anticipates that our work on this analysis will take 5 months to complete, beginning with the kick-off meeting to discuss the project. This timeline assumes that data is provided in a timely manner to the team.

1.1 Establish TAG and Project Management Calls

Our first step will be to work with the client to form a Technical Advisory Group (TAG) to review information with the team and make key technical decisions. After the kickoff Sam Schwartz will organize regularly scheduled virtual meetings with the TAG every two weeks over the course of the project.

Task 1 Deliverables

- Establish TAG
- Bi-weekly Project Management Calls

Task 2. Understand Existing and Future Conditions

2.1 Determine Project Goals and Vision

As an important community asset, many people have opinions on how people should move to and through the Great Park area. An important first step will be to establish project goals. During the kickoff or shortly thereafter, Sam Schwartz will work with the TAG to identify specific goals and desired outcomes for this study, including a discussion of how existing and future mobility options will impact further development of the site.

2.2 Review Existing Conditions

Having supported mobility plans for numerous developments around the US, our team realizes that we need to spend time establishing existing conditions and understanding the vision for Great Park to develop a robust strategy for mobility improvement.

A key to understanding the vision for Great Park will be to review existing and proposed site plans and then conduct a site visit. This will allow our team to determine how proposed land uses are impacting travel patterns, and what could and will change when future development occurs in the vicinity.

Questions Sam Schwartz will consider while reviewing existing conditions:

- How many people are traveling to/through the Great Park area?
- What modes are they using?
- What are the most popular times and days of week for travel for current land uses?
- What are currently the most important destinations?



- What new development will impact travel patterns?
- How much overlap in land uses (and thus travel demand) will occur?
- What are the regional transit amenities (e.g. Amtrack/Metrolink) that will provide options for visitors?
- Where opportunities exist for first/last mile to regional transit and parking facilities?

2.3 Develop Future Travel Model

The most important piece of Task 2 will be to develop a spreadsheet-based travel model that incorporates inputs from existing conditions review to predict current and future transit demand at the Great Park site. The team will build this model using key inputs:

- Existing and future land uses
- Expected visitor and resident travel behavior
- Existing and future transportation policies
- Expected parking costs and transit fares
- Expected transfer rates from nearby transit services.

Sam Schwartz will use this model to first predict trip flows between key destinations at the Great Park site, the most likely travel modes, and the day of week and time of travel. Next, our team will use the model to determine the top transit travel markets within the Great Park site. Three time periods will be assessed with the model: current day, +10 years (approximately halfway to site completion), and full build out. We will use the model and its findings to develop potential mobility options in Task 3

Task 2 Deliverables

- Goals Workshop with TAG
- Review of Existing Conditions
- Development of Future Travel Model
- Findings Presentation to TAG

Task 3: Develop Mobility Options

The Sam Schwartz team has extensive experience developing innovative solutions for first/last mile transit access and district circulation needs. We have designed high-capacity fixed-route circulator services for private developers and public clients such as Culver City and University of Chicago. We have also designed "microtransit," or on-demand service zones, for clients such as King County Metro (Seattle) and The Rapid (Grand Rapids' transit agency). Additionally, our team has experience with cutting-edge AV shuttles from emerging mobility studies in Utah, Seattle, Miami-Dade County, and Mecca. We understand the practical requirements of these various approaches, and how to integrate them with the other smart mobility strategies as identified in this process.



3.1 Case Studies

We will start this task by preparing several case studies from across the United States that illustrate the strengths, weaknesses, and best practices of various service delivery models. We will compare these characteristics against the strategic priorities of Great Park – including surges in demand due to amphitheater events -- to understand which types of solutions are best suited for site access and district circulation. We will also analyze operations considerations and capacity constraints due to bridge designs that require single-track operations. Our work with existing conditions will inform projected travel demand for district residents, workers, and visitors.

3.2 Develop Mobility Options

This analysis will feed into three options (e.g., good/better/best) for how to optimize mobility improvements for Great Park. For each of the three scenarios, we will create a proposed service plan that defines both alignments and service characteristics (travel time, frequency, service hours, and days in operation). This information will be used to calculate capital and operating costs for each scenario. Once defined, Sam Schwartz will discuss costs and benefits with the TAG to understand desired priorities and an overall preferred strategy for Great Park.

Mobility Hub Strategy

One key strategy Irvine may consider for Great Park is the development of a network of mobility hubs. Mobility hubs are the nodes where various forms of mobility systems (both emerging and traditional) meet and interface. By co-locating transit stops, shared micromobility docks/corrals, TNC loading zones, car share spaces, and other infrastructure such as enhanced sidewalks, bicycle facilities, and wayfinding systems, each system is made easier to use and supportive of each other.

Sam Schwartz has designed and implemented mobility hubs in the most complex environments, including current engagements in Los Angeles at LAX and for the \$1.3 billion redevelopment of Television City Studios and in Washington, D.C. at a private infill development site adjacent to Union Station. We will build on these current experiences to identify locations, requirements, and considerations for both primary and secondary mobility hubs at Great Park.

We understand that in order for mobility hubs to influence travel behavior and support additional community goals, they must be intentionally designed to support seamless transferring between modes and address aspects including:

- Weather protection,
- Connections to short, direct, and secure walking paths for transferring passengers with minimal level differences,
- Adequate clear space to prevent bottlenecks and accommodate a variety of mobility options,
- Accessible signage/kiosks/electronic communications that are legible and easily usable by people with disabilities and older adults,
- Charging stations for customer mobility devices (wheelchairs, scooters, etc.), and
- Support for public technology usage including Wi-Fi, USB charging outlets, and others.



3.3 Coordination with Other Modes

All mobility scenarios developed for Great Park will need to incorporate other modes as part of a holistic mobility strategy for the area. The Sam Schwartz team will review each scenario for its potential to connect to:

- All Metrolink and Amtrak trains that pass-through Irvine station
- All OCTA bus routes that use the Irvine Station
- Any other microtransit / micromobility services that serve the Great Park area
- Bicycle and pedestrian connections throughout the site

Task 3 Deliverables

- Development of three mobility options
- Presentation of options to TAG with Good/Better/Best evaluation

Task 4: Recommended Transit Plan

Based on review and discussion of scenarios, Sam Schwartz will aid the TAG in selecting a recommended transit plan for Great Park.

4.1 Develop Recommended Transit Plan

The recommended transportation plan will include:

- **Final alignments**: The team will determine alignment(s) for all proposed circulator patterns recommended in the plan, including recommendations for single-track and two-way movements for bridge structures and other pinch-points.
- **Service characteristics**: The team will finalize frequency, cycle time, service span, and days of week in operation.
- Vehicle recommendations: The team will identify potential vehicles to operate the service along with considerations for deployment.
- **Capital costs**: We will develop capital costs for vehicles and infrastructure associated with the transit plan; costs will be escalated for the 20-30 year time period, reflecting the implementation plan.
- **Annual operating costs**: We will develop annual operating costs for the recommended plan, escalated over the 20-30 year site development timeline.
- Vehicle Technology Assessment: The team will assess vehicle size and propulsion options; this work could impact capital costs and we would need direction from the TAG on whether a decision on vehicle type should be included in the recommended circulation plan.

4.2 Develop Implementation Plan

Based on guidance from the TAG and other identified stakeholders, Sam Schwartz will develop to develop a detailed implementation plan that cross-references the transit plan with the intended build out of the Great Park site. We expect this work to cover the following:



- Funding requirements by responsible party (i.e., master developer, other public agencies, private operator) and potential funding sources,
- Impact of the Recommended Transit Plan on spatial and design components of Great Park's Framework Plan, highlighting any recommended updates,
- Physical impacts (i.e., location and spatial needs) of the Recommended Transit Plan on infrastructure needs and planning (e.g., conduit and utilities),
- Recommended oversight and management structure for the Recommended Transit Plan, and
- Process and criteria for evaluating future emerging mobility technologies and services.

4.3 Write Draft and Final Plan

The culmination of this work will be the development of the final plan document. The Sam Schwartz team specializes in helping transit and transportation departments communicate their vision and goals with clear and compelling messaging and graphics that build understanding and support across diverse audiences. There are three steps recommended for this task:

- 1. <u>Present a Draft Plan:</u> The draft plan will be submitted to the TAG to gain feedback on direction and specific recommendations.
- 2. <u>Create a Final Plan</u>: The feedback from the TAG will be used to update and finalize the plan document. Our team will unify the conversations, feedback, and analysis from the key components of this work into a coherent story and comprehensive package.
- 3. <u>Present the Final Plans</u>: The final portion of the project will be to present the final plan to TAG. We believe this is necessary to show how the various components of the system (and their accompanying recommendations) fit together into one seamless transportation recommendation for Great Park and the City of Irvine.

Task 4 Deliverables

- Develop Recommended Transit Plan
- Develop Implementation Plan
- Creation of draft and final report
- Presentation to TAG

Proposed Budget

Sam Schwartz proposes a budget of \$55,944 to complete the Great Park Transit Demand Study. This includes one field visit, bi-weekly project meetings over the course of the project, three key presentations to the TAG, and a final report.

The table below provides more details on the proposed budget:

	Name Firm Title Rate Total Hours	Joe Iacobucci Sam Schwartz Senior Advisor \$310.73 18	Matt Orenchuk Sam Schwartz Project Manager \$226.96 56	Dora Miketa Sam Schwartz Associate \$162.11 116	Sydney Maves Sam Schwartz Planner \$116.17 160		
Task 1. Project Management						Cost	Hours
1.1 TAG+Project Management Calls		6	6	6	6	\$4,896	24
Task 2. Establish Project Understanding							
2.1 Determine Project Goals and Vision		1	2	6	6	\$2,434	15
2.2 Review Existing Conditions		1	6	16	16	\$6,125	39
2.3 Develop Future Travel Demand Model		1	6	16	16	\$6,125	39
Present to TAG		1	2	4	8	\$2,342	15
Task 3. Develop Mobility Options							
3.1 Case Studies		1	4	10	16	\$4,698	31
3.2 Develop Mobility Options		1	6	10	24	\$6,082	41
3.3 Coordination with other modes			2	4	4	\$1,567	10
Present to TAG		1	2	4	8	\$2,342	15
Task 4. Develop Recommended Plan							
4.1 Develop Recommended Transit Plan		1	6	10	16	\$5,152	33
4.2 Develop Implementation Plan		1	6	10	16	\$5,152	33
4.3 Write Draft and Final Report		1	6	16	16	\$6,125	39
Present to TAG		2	2	4	8	\$2,653	16

Proposed Schedule

We anticipate 5 months to complete the Great Park Transit Demand Study.

	month 1	month 2	month 3	month 4	month 5
Task 1. Project Management					
Bi-weekly Project Calls					
Task 2. Establish Project Understanding					
Analysis					
Task 3. Develop Mobility Options					
Analysis					
Task 4. Develop Recommended Plan					
Analysis					
Write Final Plan					



Proposed Project Team

Key staff biographies are listed below, while resumes for the full team are provided in Appendix A.

Joe lacobucci is the New Mobility National Practice Leader and West Coast General Manager for Sam Schwartz. He is a nationally-recognized leader in the shared mobility field, currently responsible for managing several major projects, including a national study for Transit Center, the first region-wide study for shared mobility for Seattle and King County, the technical work for the National Academies, and a quantitative analysis. Key to his approach on shared mobility analysis, is his intuitive grasp of mass transit, mobility, access, market optimization, and transportation technology which has led to success in advising clients on integrating shared mobility with traditional fixed route transit. His work has been featured at several conferences and The Atlantic's CityLab.

Matt Orenchuk is Sam Schwartz's Transit and Rail Practice Leader, with 18 years' experience as a planner and consultant. His project experience includes small, medium, and large cities throughout the US. Matt's experience touches on fundamental topics that inform transit route planning, including trend analysis, performance analysis, and operational cost estimates. He understands that transit planning requires balancing competing priorities to create a network that can deliver for all riders. Matt's career mission is to align transit and municipal agencies on operations and policy goals that improve the quality of life for transit riders. Matt will provide technical leadership as the project manager for this project.

Dora Miketa is an Associate specializing in emerging and future mobility services with a focus on data analytics. She brings over six years of planning experience completing projects for a variety of clients, including the Point of the Mountain State Land Authority, the City of Culver City, the Port Authority of NY & NJ, New York City Department of Transportation, and the Capital District Transportation Committee. She is a key member of Sam Schwartz's data team, using her data visualization expertise to develop innovative tools to track and predict activity regionally and at major transportation hubs. She bridges the gap between analysis and communication and has supported the development of several major transportation monitoring and evaluation reports considering climate impacts and she is proficient in ESRI, ArcGIS, Tableau, and Adobe Creative Suite.

Sydney Maves is a Transit Planner based in Los Angeles. At Sam Schwartz, she has helped cities analyze complex datasets and visually model the impacts of legislation on travel patterns using Python and ArcMap. Ms. Maves has worked on numerous long-range transportation planning projects to implement robust Transportation Demand Management programs and redesign neighborhood roadways to create streetscapes that prioritize safety for pedestrians and cyclists while maintaining access needs for automobiles.