STAP Rollout Schedule

Submitted October 18, 2022
Version 1.0

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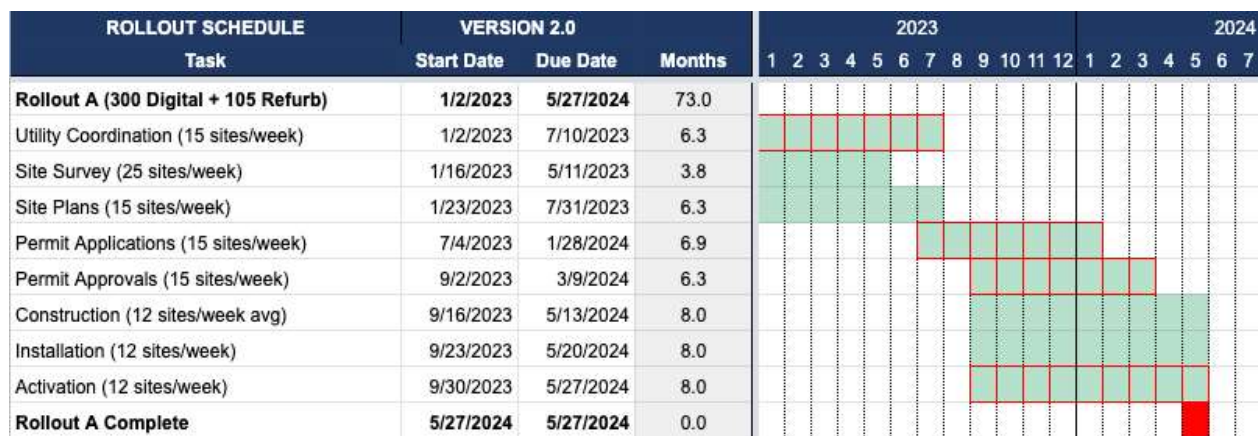
1. GANTT CHART

> From 4.5: A Gantt chart shall show all major work items, points of interface with the City and milestone submittals

Clarifying Notes:

- Points of interface with the City are indicated with a red box.

- Gantt chart is split by phase for viewing simplicity; combined gantt chart is attached as an attachment.

- Other amenities (kiosk, dock, locker) are not detailed out, and Shade Shelter are not included at this time; additional scoping is required from StreetsLA to fully incorporate these elements.

ROLLOUT SCHEDULE Task	Start Date	Due Date	Months
Planning A			
Software Requirements Gathering	10/4/2022	11/2/2022	4.1
Tech Evaluation and Validation	10/4/2022	11/24/2022	7.3
User Experience	10/4/2022	1/16/2023	14.9
Shelter UI Design	1/18/2023	3/9/2023	7.1
Non-shelter UX and UI Design	12/5/2022	4/30/2023	20.9
Software Development	11/3/2022	9/12/2023	44.7
Design Validation	10/4/2022	12/3/2022	8.6
Design Kit of Parts for Permit	11/3/2022	2/13/2023	14.6
Design Documentation for Fabricator	2/1/2023	3/31/2023	8.3
Industrial Design	11/25/2022	4/17/2023	20.4
Community Outreach Meetings	10/4/2022	12/26/2022	11.9
Finalize Year 1 Site List	10/18/2022	12/31/2022	10.6
Kit of Parts Codification	12/26/2022	7/4/2023	27.1
Planning A Complete	9/12/2023	9/12/2023	0.0

ROLLOUT SCHEDULE Task	Start Date	Due Date	Months
Rollout A (300 Digital + 105 Refurb)	1/2/2023	5/27/2024	73.0
Utility Coordination (15 sites/week)	1/2/2023	7/10/2023	6.3
Site Survey (25 sites/week)	1/16/2023	5/11/2023	3.8
Site Plans (15 sites/week)	1/23/2023	7/31/2023	6.3
Permit Applications (15 sites/week)	7/4/2023	1/28/2024	6.9
Permit Approvals (15 sites/week)	9/2/2023	3/9/2024	6.3
Construction (12 sites/week avg)	9/16/2023	5/13/2024	8.0
Installation (12 sites/week)	9/23/2023	5/20/2024	8.0
Activation (12 sites/week)	9/30/2023	5/27/2024	8.0
Rollout A Complete	5/27/2024	5/27/2024	0.0

| ROLLOUT SCHEDULE | VERSION 2.0 | | | 2024 | | | | | | | | | | | | | | | |
Task	Start Date	Due Date	Months	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Rollout B (359 Digital,100 Icon,161 Refurb)	1/2/2024	3/15/2025	62.6															
Utility Coordination (15 sites/week)	1/2/2024	10/18/2024	9.7															
Site Survey (25 sites/week)	1/16/2024	7/9/2024	5.8															
Site Plans (15 sites/week)	1/23/2024	11/8/2024	9.7															
Permit Applications (15 sites/week)	3/2/2024	12/17/2024	9.7															
Permit Approvals (15 sites/week)	5/1/2024	2/15/2025	9.7															
Construction (15 sites/week avg)	5/15/2024	3/1/2025	9.7															
Installation (15 sites/week)	5/22/2024	3/8/2025	9.7															
Activation (15 sites/week)	5/29/2024	3/15/2025	9.7															
Rollout B Complete	3/15/2025	3/15/2025	0.0															

| ROLLOUT SCHEDULE | VERSION 2.0 | | | 2025 | | | | | | | | | | | | | | | |
Task	Start Date	Due Date	Months	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Rollout C (480 Static:grid, 161 Refurb)	1/2/2025	3/29/2026	64.4															
Utility Coordination (15 sites/week)	1/2/2025	11/1/2025	10.1															
Site Survey (25 sites/week)	1/16/2025	7/17/2025	6.1															
Site Plans (15 sites/week)	1/23/2025	11/22/2025	10.1															
Permit Applications (15 sites/week)	3/3/2025	12/31/2025	10.1															
Permit Approvals (15 sites/week)	5/2/2025	3/1/2026	10.1															
Construction (15 sites/week avg)	5/16/2025	3/15/2026	10.1															
Installation (15 sites/week)	5/23/2025	3/22/2026	10.1															
Activation (15 sites/week)	5/30/2025	3/29/2026	10.1															
Rollout C Complete	3/29/2026	3/29/2026	0.0															

| ROLLOUT SCHEDULE | VERSION 2.0 | | | 2026 | | | | | | | | | | | | | | |
Task	Start Date	Due Date	Months	1	2	3	4	5	6	7	8	9	10	11	12	1	2
Rollout D (457 Static:grid, 89 Refurb)	1/2/2026	2/9/2027	57.6														
Utility Coordination (15 sites/week)	1/2/2026	9/14/2026	8.5														
Site Survey (25 sites/week)	1/16/2026	6/18/2026	5.1														
Site Plans (15 sites/week)	1/23/2026	10/5/2026	8.5														
Permit Applications (15 sites/week)	3/3/2026	11/13/2026	8.5														
Permit Approvals (15 sites/week)	5/2/2026	1/12/2027	8.5														
Construction (15 sites/week avg)	5/16/2026	1/26/2027	8.5														
Installation (15 sites/week)	5/23/2026	2/2/2027	8.5														
Activation (15 sites/week)	5/30/2026	2/9/2027	8.5														
Rollout D Complete	2/9/2027	2/9/2027	0.0														

| ROLLOUT SCHEDULE | VERSION 2.0 | | | 2027 | | | | | | | | | | | | | | | | | |
Task	Start Date	Due Date	Months	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
Rollout E (660 Static:solar)	**1/2/2027**	**4/2/2028**	65.1																
Utility Coordination (15 sites/week)	1/2/2027	11/6/2027	10.3																
Site Survey (25 sites/week)	1/16/2027	7/20/2027	6.2																
Site Plans (15 sites/week)	1/23/2027	11/27/2027	10.3																
Permit Applications (15 sites/week)	3/3/2027	1/5/2028	10.3																
Permit Approvals (15 sites/week)	5/2/2027	3/5/2028	10.3																
Construction (15 sites/week avg)	5/16/2027	3/19/2028	10.3																
Installation (15 sites/week)	5/23/2027	3/26/2028	10.3																
Activation (15 sites/week)	5/30/2027	4/2/2028	10.3																
Rollout E Complete	**4/2/2028**	**4/2/2028**	0.0																

| ROLLOUT SCHEDULE | VERSION 2.0 | | | 2028 | | | | | | | | | | | | | | | |
Task	Start Date	Due Date	Months	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
Rollout F (644 Static:solar)	**1/2/2028**	**3/26/2029**	64.1															
Utility Coordination (15 sites/week)	1/2/2028	10/29/2028	10.0															
Site Survey (25 sites/week)	1/16/2028	7/14/2028	6.0															
Site Plans (15 sites/week)	1/23/2028	11/19/2028	10.0															
Permit Applications (15 sites/week)	3/2/2028	12/28/2028	10.0															
Permit Approvals (15 sites/week)	5/1/2028	2/26/2029	10.0															
Construction (15 sites/week avg)	5/15/2028	3/12/2029	10.0															
Installation (15 sites/week)	5/22/2028	3/19/2029	10.0															
Activation (15 sites/week)	5/29/2028	3/26/2029	10.0															
Rollout F Complete	**3/26/2029**	**3/26/2029**	0.0															

2. SCHEDULE OF SERVICES

From 4.5: The Contractor's schedule of services shall show the dates on which each part or division of the work is expected to be started and completed and shall show all submittals associated with each work activity. The Contractor shall submit a written explanation with the original schedule submittal and show sufficient detail as to how the work is to be performed to enable the City to make an evaluation

From Exhibit A, 2: A plan and schedule for program implementation during Contract Years 1 through 5.

Clarifying Notes:

- For details on Rollout, please see Section 6. Installation / Shelter Revitalization Plan

PLANNING A: TECHNOLOGY GROUP

Software Requirements Gathering　　　　**Start: 2022-10-04**　　　**Complete: 2022-11-02**

- Determine scope of work and order of work. Includes Project kick-off, key stakeholder interviews, UX exploration, and technological feasibility assessment. Designworks will use a two-week discovery period to determine the most important feature set across a defined set of stakeholders. This is the opportunity to get unfiltered feedback from key contributors with in-depth knowledge of current gaps in existing apps, web, mobile, and kiosk interactions within a passenger journey.

- StreetsLA will establish contacts and facilitate meetings with ITA, NotifyLA, and Advanced Planning to establish proper protocols and game plan for integrations with preferred data feeds.

Tech Evaluation and Validation　　　　**Start: 2022-10-04**　　　**Complete: 2022-11-24**

- Tranzito-Vector will lead a two-week assessment to align all aspects of physical and digital experiences and regulations and requirements from the City of Los Angeles. Based on understood experience requirements and limitations across app, mobile, web, kiosk, and transit/advertising screens, the teams will align on and explore how technologies will directly influence passengers and impact their journeys.

- At the end of the Technology Evaluation, Tranzito-Vector will provide specifications for any products or software to enable Designworks to accurately plan UX design across the required interfaces, including advertising display, transit ePaper display, app, mobile, and web.

User Experience   **Start: 2022-10-04**   **Complete: 2023-01-16**

- In addition to feedback from the City of Los Angeles' key stakeholders, Designworks will dive into trends outside the bus space, and look to micro-mobility, aviation, automotive, and new lateral spaces where key innovations are happening to explore future possibilities that will challenge existing ideas and enable better outcomes. The goal is to foster a visionary UX look-and-feel that ties into the physical design of the bus shelters to create a truly connected experience and enable the physical structure to become a smart mobility node.

- Designworks will include all insights into a defined UX Strategy. This integrated UX Strategy will be used as a guideline for all UX designs including the app, web, mobile, and kiosk experiences. A strategy document will be produced outlining how interactions, content, and interfaces will be used and support the overall look and feel of STAP from a digital perspective.

- Key to this strategy will be the definition of unifiers and differentiators that will make the digital UX unique but also part of the fabric of the diverse Los Angeles lifestyle, and connected to the physical environment. This is planned as a printed document and will be modified as required throughout the first 12 months of the program.

Shelter UI Design   **Start: 2023-01-18**   **Complete: 2023-03-09**

- Focus on translating all of the immersion and strategy inputs and outcomes into a single unique, ownable, and inspirational future UX expression for STAP. The first step in this process is to create UX Narratives that will guide the experience passengers see during their journey throughout the STAP digital ecosystem. Designworks will create iconic visuals that are easy to use and create value for the passenger journey. Narratives will be mapped out as storyboards in order to demonstrate how different user types (ADA, equity, tourist) approach their corresponding journeys, and to ensure no gaps exist within the digital experience.

- Designworks will capture required content for the advertising and transit screen displays, including emergency messaging, community special events messaging, and city messaging and cultural assets. Designworks will assume 15-20 content pieces for the Advertising Screen and 5 screens for the ePaper screens.

Non-shelter UX and UI Design   **Start: 2022-12-05**   **Complete: 2022-04-30**

- Based on the Integrated UX Strategy, Designworks will create user experiences across the App, web, mobile, and kiosk digital components. These experiences will be consistent with the Advertising and Transit screen UX and content.

- These experiences will be built either based on new technology, or the developing partner's existing framework. It is assumed all partners will have and provide a defined feature set that matches the development periods provided within this scope of work. The app, web, mobile, and kiosk UX will include features agreed to during the Tech Evaluation period and based on the ability to complete within the timelines of this program.

6

Software Development   **Start: 2022-11-3**   **Complete: 2023-09-12**

Software development will be an ongoing and iterative process, based on agile principles. Actual software development will take place throughout the term of this contract. While further scoping with StreetsLA is required, the general phase of early development is foreseen as:

1. MVP of core features. This includes integration with advertising and ePaper screen displays, communication with all connected devices, integration with other databases (such as MyLA311, Sitetracker and Cartegraph), and reports in regular intervals.

2. Refinement of core features. This phase will focus on refinement of MVP features. For example, further customization or controls of digital screen displays, on-demand or ad-hoc controls of connected devices, more in-depth integrations, and reports on-demand.

3. Design refinement of core features. Once core features are at a mature stage, UI/UX design will lock-in the overall look and feel of the overall CurbCMS program.

4. MVP of CurbApp. Based upon the development path of the above phases, the CurbApp may be developed in a parallel or sequential order. This flexibility allows the core CurbCMS program to develop as opportunities and project barriers come to fruition. The CurbApp will be built as an MVP first, and may launch with its core feature first, namely real-time bus arrival information.

5. Refinement of CurbApp. The CurbApp will be iterated along an agile development. This development may include ancillary feature upgrades, or based upon upcoming industry trends and StreetsLA preferences may deviate altogether. Tranzito-Vector will work alongside StreetsLA to determine the best path for this quick-moving space.

PLANNING A: DESIGN GROUP

Design Validation   **Start: 2022-10-04**   **Complete: 2022-12-03**

- SOM will lead design of the bus shelters, using the prototype used in the STAP Demonstration of Technologies evaluation phase as a starting point. All aspects will be reconsidered, including overall design, constructability, durability and maintenance, and cost. This will be a highly collaborative process involving industrial design input from Designworks, manufacturing and engineering input from Tolar, and input from StreetsLA and Tranzito-Vector. SOM will also take guidance from HLB, its lighting subcontractor, to analyze various illumination factors.

- SOM will also perform further on-site evaluation to validate long-term aesthetic relevance across the many neighborhoods of Los Angeles.

Design Kit-of-Parts for Permit   **Start: 2022-11-03**   **Complete: 2023-02-13**

- SOM will develop a family of street furniture based upon its singular design theme: Icon, Digital, Eco:grid, Eco:solar, Shade Shelter, Kiosk, Scooter Dock, and Delivery Locker. All bus shelters and kiosk will be designed specifically for STAP; vinyl wrap and/or signage additions will be designed for the Scooter Dock and Delivery Locker.

- Bus shelters may be designed in a modular format to conform to various sidewalk conditions (further scoping during Design Validation is required before confirming this). Parts will be shared across all bus shelters to the extent possible. All street furniture will come with stamped engineer drawings in preparation for the kit of parts permit approvals process.

Design Documentation for Fabricator   **Start: 2023-02-01**   **Complete: 2023-03-31**

- SOM will lead design of the bus shelters, using the prototype used in the STAP Demonstration of Technologies evaluation phase as a starting point. All aspects will be reconsidered, including overall design, constructability, durability and maintenance, and cost. This will be a highly collaborative process involving industrial design input from Designworks, manufacturing and engineering input from Tolar, and input from StreetsLA and Tranzito-Vector. SOM will also take guidance from HLB, its lighting subcontractor, to analyze various illumination factors.

- SOM will also perform further on-site evaluation to validate long-term aesthetic relevance across the many neighborhoods of Los Angeles."

- Post-permit application for design kit-of-parts, SOM will continue refining the street furniture. This may include non-engineering improvements, design additions through graphics and color treatments, options for including additional elements (such as emergency talk buttons, sensors, etc.), and other refinements.

Industrial Design   **Start: 2022-11-25**   **Complete: 2023-04-17**

- The kiosk has the highest return on capital, and is therefore a vital element to STAP program. But the kiosk has the potential to become much more than simply an advertising medium, and can used to provide interactive support, directional wayfinding, hydration stations, etc.

- Designworks BMW will lead the industrial design process, focusing its energies on the kiosk element, with the stated purpose to deliver amenities to local Angelenos and tourists alike. The design intent is to be future-focused and deliver a unique experience in preparation for the 2028 Olympics. In order to not interfere with the critical path timeline of bus shelters, the kiosk will take on its own developmental path.

PLANNING A: PLANNING AND LAUNCH GROUP

Community Outreach Meetings   **Start: 2022-10-04**   **Complete: 2022-12-26**

- Tranzito-Vector will redirect public engagement efforts towards a multi-year campaign encouraging consistent two-way communication with the general public. The components of this Public Engagement Plan will be finalized upon further scoping with StreetsLA over the remainder of 2022, and will likely include a website (to be determined whether this website will be hosted by StreetsLA or Tranzito-Vector), visual media, and forms submissions.

- This campaign will be preceded by six biweekly community outreach planning meetings with StreetsLA and led by Fehr and Peers. These meetings will establish the public engagement plan and overall outreach strategy for STAP.

Finalize Year One Site List   **Start: 2022-10-18**   **Complete: 2022-12-31**

- This task is led by StreetsLA with assistance from Tranzito-Vector and Fehr & Peers. StreetsLA developed a combined list of locations, prioritized in a P1-P2-P3-P4 format based upon multiple criteria: heat index, equity score, ridership, bus wait times, and trip generators. Tranzito-Vector will provide a list of priority sites based on advertising viability and maximum revenue generation. StreetsLA will merge the lists to create a master list, and Fehr & Peers will provide additional assistance and validation as needed.

- Tranzito-Vector will work alongside StreetsLA to facilitate meetings with BSL and DWP to determine power capacity at the selected locations. This step is vital in order to further refine the priority list and determine sequencing of locations.

- Tranzito-Vector will work with Fehr & Peers and other partners to generate an initial sequencing list based upon various factors, including constructability, location clusters, equitable distribution, and other factors. Tranzito-Vector's team, led by Studio One Eleven, will perform on-site surveys to create site plans and also audit locations to determine on-the-ground factors. The findings from this survey will further refine the sequencing list.

Kit of Parts Codification   **Start: 2022-12-26**   **Complete: 2023-07-04**

- Based on the design kit of parts, the codification process entails preparing for the permit application process with the Bureau of Engineering. During this phase, processes are finalized and calculations will be verified.

- In order to achieve our goal of installing shelters by Summer 2023, the codification and permit application process may be split into two parts. The first part may include an application for just the shelter, bench, and trash receptacle. This part one design kit of parts will be completed sooner, allowing the permitting process to begin as the complete design kit of parts is being finalized.

- Once the kit of parts permits are approved, the next stage entails applying for site permits. Permit applications will be performed directly by StreetsLA in a batch permit process and route the permits to relevant city departments with a goal of 60 permit approvals a month.

- Permit applications are expected to be submitted at least 6 months prior to shelter installations to ensure sufficient lead time throughout the rollout of STAP shelters. StreetsLA will play a crucial role in ensuring a continuous log of permit applications to approvals within city departments.

3. PROGRESS SCHEDULE

From 4.5: The Contractor shall also submit a separate progress schedule listing all submittals required under the Contract and when the anticipated date each submittal will be provided.

Work Activity	Due Date	Assigned To
Exhibit B: Roll Out Schedule	2022-10-18	T-V
Exhibit C: Capital Needs Assessment	2022-10-18	T-V
Weekly STAP updates	2022-10-19	T-V
Monthly invoices	2022-11-07	T-V
Monthly progress reports	2022-11-07	T-V
Transition Plan	2022-12-23	T-V
Site Selection Year 1 sites (2023)	2023-01-01	StreetsLA
Annual Sales Plan	2023-01-31	T-V
Annual Business Plan	2023-01-31	T-V
Contractor Evaluation and Performance Criteria	2023-02-28	StreetsLA
Quarterly Payments to the StreetsLA	2023-04-30	T-V
Site plan permit package template	2023-05-19	T-V
Capital Funding Requests	2023-07-01	T-V
Capital Needs Assessment	2023-07-01	T-V
Kit of Parts	2023-07-06	T-V
Review and Approve Capital Funding Requests	2023-08-31	StreetsLA
Annual Site Approval Process	2023-08-31	StreetsLA
Planning A Complete	2023-09-12	T-V
Site Selection Year 2 sites (2024)	2024-01-01	StreetsLA
Annual Program Review	2024-01-31	T-V
Annual Reconciliation	2024-01-31	T-V
Annual True-Up Payment	2024-02-28	T-V
Rollout A Complete (Digital)	2024-05-27	T-V
Site Selection Year 3 sites (2025)	2025-01-01	StreetsLA
Rollout B Complete (Digital, Icon shelters)	2025-03-15	T-V
Site Selection Year 4 sites (2026)	2026-01-01	StreetsLA
Rollout C Complete (Static:grid shelters)	2026-03-29	T-V
Site Selection Year 5 sites (2027)	2027-01-01	StreetsLA
Rollout D Complete (Static:grid shelters)	2027-02-09	T-V
Site Selection Year 6 sites (2028)	2028-01-01	StreetsLA
Rollout E Complete (Static:solar shelters)	2028-04-02	T-V
Rollout F Complete (Static:solar shelters)	2029-03-26	T-V

4. PUBLIC ENGAGEMENT PLAN

From Exhibit A, 2: A Public Engagement Plan that supports the implementation of STAP based on the Roll Out Schedule.

This Public Engagement Plan is revised from the BAFO Narrative 4.2. The BAFO Narrative described three distinct stakeholder engagement groups, which each included some public-facing outreach through CBOs and/or EmpowerLA (Neighborhood Councils):

> *Upon contract commencement, we will spend the first six months in Phase 0 and lead five parallel Working Groups -- Transition, Planning, Technology, Design, Launch -- of which three will have direct public engagement:*
> - *Technology Group: Led by BMW Designworks with Tranzito, Complete Streets, ITS, ITA, MDS, ATSAC 3.0, DWP/BSL, utility providers, and CBOs.*
> - *Design Group: Led by SOM with BMW Designworks, Studio One Eleven, Fehr & Peers, Tolar Manufacturing, EmpowerLA, and relevant Planning Group and community groups.*
> - *Launch Group: Led by Studio One Eleven with Black & Veatch, Fehr & Peers, Vertical Bridge, DWP/BSL, Permits department, and EmpowerLA.*

This revision is based upon several factors since the writing of the BAFO Narrative:

- Technology Group: StreetsLA has indicated a desire to limit digital integrations at the program start. The focus will be on integration with ITA, NotifyLA, and Cartegraph, the City's selected asset management program.

- Design Group: Given the compressed schedule and long materials lead times, an extensive design study was conducted prior to Notice to Proceed with Chris Hawthorne, the City's Chief Design Officer, and his team, to address concerns primarily related to shade maximization.

- Launch Group: StreetsLA has already undertaken an extensive public outreach campaign over the past two years in support of STAP, generating broad input on all matters related to bus shelters. StreetsLA has also collected several decades' worth of public input on prioritization of shelter locations.

Tranzito-Vector will redirect public engagement efforts towards a broader external affairs strategy that emphasizes and invites robust and consistent two-way communication with the general public, balancing information-sharing to the public with opportunities for the public to engage with and provide feedback to StreetsLA that can continue to guide the STAP program through its evolution. The Tranzito-Vector team recommends developing a strategy that connects with every day bus riders, focusing on the positive impact the program is having in communities and inviting opportunities for improvement from those who are using the bus system. This approach will accompany traditional mechanisms for seeking public input, such as public meetings and static information on a web page, which tend to only engage those who have time, capacity, and familiarity with local government and tend to underrepresent the most loyal transit riders who are most reliant on the bus system.

The components of this Public Engagement Plan will be finalized upon further scoping with StreetsLA over the remainder of 2022, and will likely include some of the following components:

- Branding, messaging, and translation guidelines to ensure an engaging and legible communication system

- A website with program information and clear mechanisms to provide meaningful input (to be determined whether this website will be hosted by StreetsLA or Tranzito-Vector)

- Visual media and graphics to accompany the program roll-out and subsequent phases of work (including opportunity to share positive program statistics with the public)

- Meetings with Neighborhood Councils, Community-Based Organizations, and mobility advocacy groups

- Surveys to solicit quantitative and qualitative feedback (virtual/forms as well as analogue/hard copy submissions)

This campaign will be preceded by six biweekly engagement planning meetings with StreetsLA and led by Fehr and Peers. These meetings will establish the public engagement plan and overall outreach strategy for STAP.

5. CAPITAL NEEDS ASSESSMENT

From Exhibit A, 2: The types, quantities, and costs of all proposed Program Elements including the types, quantities, costs, and locations of Digital Displays must be identified by year. Program Elements must also be identified as advertising or non-advertising units.

General Notes:

- Locations of digital displays are not available at this time - final list is pending from StreetsLA.

- Shade shelters are not included at this time - initial pricing is pending design phase, scheduled early 2023.

- Program elements for 2023 are assumed to be ordered at current prices, all other years assume an annual 4% PPI inflation rate.

- Kiosks installation are assumed during the 2024 calendar year; lockers and docks installation are assumed during the 2025 calendar year.

Types	Digital	Advertising	Totals	
			Qty	Cost
Icon Shelters		Yes	100	4,485,496
Digital Shelters	Yes	Yes	659	37,901,729
Eco: grid Shelters		Yes	937	29,001,904
Eco: solar Shelters		Yes	1,304	53,568,211
Shade Shelters		No	0	
Kiosks	Yes	Yes	202	8,306,621
Lockers	Yes	Yes	44	1,310,285
Docks	Yes	Yes	93	4,255,437
			3,339	138,829,683

Types	2023		2024		2025	
	Qty	Cost				
Icon Shelters	-	$ -	100	$ 4,485,496	-	$ -
Digital Shelters	300	$ 16,886,240	359	$ 21,015,489	-	$ -
Eco: grid Shelters	-	$ -	-	$ -	480	$ 14,572,601
Eco: solar Shelters	-	$ -	-	$ -	-	$ -
Kiosks	-	$ -	202	$ 8,306,621	-	$ -
Lockers	-	$ -	-	$ -	44	$ 1,310,285
Docks	-	$ -	-	$ -	93	$ 4,255,437
	300	$ 16,886,240	661	$ 33,807,606	617	$ 20,138,323

Types	2026		2027		2028	
Icon Shelters	-	$ -	-	$ -	-	$ -
Digital Shelters	-	$ -	-	$ -	-	$ -
Eco: grid Shelters	457	$ 14,429,303	-	$ -	-	$ -
Eco: solar Shelters	-	$ -	660	$ 26,587,519	644	$ 26,980,692
Kiosks	-	$ -	-	$ -	-	$ -
Lockers	-	$ -	-	$ -	-	$ -
Docks	-	$ -	-	$ -	-	$ -
	457	$ 14,429,303	660	$ 26,587,519	644	$ 26,980,692

Construction spend is the largest escalated expense from the BAFO; reducing this amount remains the greatest opportunity to minimizing capital need. Tranzito-Vector recommends that the following to reduce this cost:

- Design the new shelter footprint to match existing Boulevard shelter. Making this design change will allow the use of existing footers at a vast majority of the 660 locations and will save an estimated $13,000 per site (including the 10% profit/overhead and 20% contingency).

- Be judicious in spending STAP budget on repouring concrete. Initial studies have indicated that a vast majority of existing bus stop shelter locations will pass existing ADA regulations and can save an excess of $10,000-$20,000 per site (depending upon if new footers at non-Boulevard bus stop locations are required).

Capex	BAFO	New Estimate	$ Increase	% Increase
Equipment	$ 136,791,058	$ 152,993,961	$ 16,202,903	12%
Construction Costs	$ 75,253,105	$ 177,652,737	$ 102,399,632	136%
Design & Consulting Services	$ 5,637,850	$ 7,294,089	$ 1,656,239	29%
Maintenance Capex	$ 19,049,494	$ 29,207,677	$ 10,158,183	53%
Systems Integration Capex		$ 13,322,762	$ 13,322,762	
Total Capex	**$ 236,731,507**	**$ 380,471,227**	**$ 143,739,720**	**61%**

Capex	Price Increase Explanation Since BAFO
Equipment	This increase is in-line with annual PPI increase for 2022. Also, the annual inflation estimate was raised from 3% to 4%.
Construction Costs	StreetsLA directed two key changes - use of Prevailing Wages and increase of pad size from roughly 120 square feet to 300 square feet. This figure includes a 20% contingency.
Design & Consulting Services	This increase is almost exclusively due to increased site plan expectations with the larger pad size.
Maintenance Capex	Boosted allocation from 3% of revenues to 5% of revenues given recent incidents of digital bus shelters at West Hollywood.
Systems Integration Capex	This was added to City's ledger during the negotiations process.

6. INSTALLATION / SHELTER REVITALIZATION PLAN

From Exhibit A, 2: Installation plan for each location describing what considerations will be made to minimize disruption to transit riders, active transportation and shared mobility users and pedestrians, and what services will be required of the City to achieve that schedule.

From Exhibit A, 2: A plan and schedule for the Shelter Revitalization Program during Contract Years 1 through 5.

This plan is currently under development with StreetsLA. This section will be revised to include a detailed swim-lane diagram showing all aspects of permits and rollout.

Requests made by StreetsLA post-BAFO and resultant revised expectations:

1. Equitable distribution of shelters should be prioritized. This decision will dampen advertising revenues for the initial rollout periods; the BAFO projections were based on the assumption that early rollout locations would prioritize program revenue generation.

2. Extensive site work should be prepared at refurbished sites. The original intention was to surface-mount refurbished shelters to help speed up deployment. However, StreetsLA desires to bring a new electrical service at each site, which requires full demo/reconstruction of the sidewalk. *This will increase the lead-time for the initial rollout periods.* Our plan is to prepare the site for future electrical service by installing underground infrastructure (electric hand hole, conduit sweep, etc.) during site prep. LADWP can elect to install the new service at a later date.

3. Grid power capacity remains uncertain on a site-by-site basis. There remains uncertainty as to which locations have sufficient grid power for digital ad screens, and which locations have 24/7 grid power. As a result, Tranzito-Vector makes two recommendations. First, it is paramount to set power capacity as a major criteria in the site selection process. Second, StreetsLA will need to facilitate tight coordination with DWP and BSL to prevent delays in rollout (a line item "Utility Coordination" has been added to each rollout period).

4. Optional equipment (kiosks, lockers, docks) must not create delays in shelter installations. Given the request for power at refurbished locations, installation of optional equipment may not be feasible in the initial rollouts and lead to two consequences. First, program revenues will be hampered during the initial rollout periods. Second, construction costs will increase as certain bus stops to get optional equipment will need to be re-engaged.

5. Consider a strategy to install new shelters by July. Two solutions were considered to achieve this request. First, splitting the design kit of parts process to begin with non-panel bus shelter components (shelter, bench, trash receptacle) in order to begin the permit process earlier; the panel (which includes electrical controller, advertising screens, and beacon light) would be installed after. Second, initiating site prep work of locations receiving refurbished shelters early.

    Ultimately, the cost-benefit analysis of both options is somewhat constrained (and the first option was rejected) due to permit realities:

    • Option 1, Split design kit of parts: Ultimately, the site location will need to be permitted and site prepped for the complete bus shelter anyway, rendering the ability to apply for a streamlined bus shelter and permit application unrealistic. Furthermore, since lighting is

not feasible without the panel, this leads to safety concerns and results in a worse passenger experience at the existing locations with existing bus stops.
- Option 2, Begin site prep at refurbished locations: This option faces the same reality as Option 1. Since the desire is to completely site prep these locations, work cannot start until the complete design kit of parts is complete. With that said, Tranzito-Vector is recommending to begin site prep of refurbished sites as soon as feasible.

Tranzito-Vector was able to *reduce* the design process to deliver the design kit-of-parts four to six weeks earlier than scheduled (end of February). However, the expected timeline to get approvals for the design kit of parts has *increased* by four to six weeks (now estimated at 3 months).

Given these offsetting estimates, baseline construction is scheduled to begin September 2023. With that said, Tranzito-Vector believes that creative solutions – namely placing pre-orders on raw materials and selecting early sites that have clean site conditions – may allow shelters to be installed much sooner than this. Additional scoping is required to confirm recent findings.

Additional Installation / Refurbishment Notes:

1. Tranzito-Vector has estimates that 35% of existing shelters (with a minimum of 523 refurbs) will be viable for refurbishment. The expectation is for shelters to be removed and re-installed within a single action, meaning refurbished sites will need to be site prepped prior to construction at existing locations.

2. StreetsLA will produce at least 800 site locations by January 1 of each year. Therefore, January 1 marks the official start to each rollout period. Rollout periods are split accordingly:

   - Rollout A: 300 Digital and 105 refurb shelters.
   - Rollout B: 359 Digital, 100 Icon, 161 refurb shelters.
   - Rollout C: 480 Static:grid, 161 refurb shelters.
   - Rollout D: 457 Static:grid, 89 refurb shelters.
   - Rollout E: 660 Static:solar shelters.
   - Rollout F: 644 Static:solar shelters.

   NOTE: If refurbishment locations are planned for grid power, then Static:solar may be converted to Static:grid shelters. Conversely, the opposite may result at locations that do not have 24/7 power.

Below is a draft version of installation steps as it currently stands:

Site Selection

1. StreetsLA will harmonize various criteria into a single list of locations at the beginning of each calendar year.

2. Council districts, communities organizations, and businesses will receive the site list and will be provided with the opportunity to comment.

3. Tranzito-Vector will sequence the list into a rollout schedule, based upon input from the public and StreetsLA.

Pre-Construction

4. All relevant permits, approvals, and power connections will be coordinated ahead of time. This will entail site visits, site plans, remediation plans on a site-specific basis, remediation efforts on a site-specific basis, and other considerations.

5. All early planning communications will be coordinated ahead of time. This includes bus operators (Metro, LADOT, etc.) and council district offices.

6. All existing bus shelters will be cataloged based on their capacity for refurbishment. Qualified shelters will be in general good condition with a general rule of being surface-mounted.

7. Construction personnel will site-visit existing locations and perform site survey measurements to generate construction plans. This will include identification of potential construction barriers, estimating for concrete saw cutting, estimating new concrete PCC area, verification of existing grades, slope percentages and offsets leading up to and around shelter footprint, revisions to site plans as necessary, coordination with StreetsLA personnel, and traffic control plans.

8. Locations scheduled for new shelters will be sequenced according to schedule optimization. Three construction crews are anticipated to work simultaneously once at full capacity, with each crew focusing on clustered locations.

9. A web page will display upcoming shelter removals and site improvements in list and map views at least four weeks prior.

10. Notice of removal and site improvements at existing shelter locations will be posted at least three weeks prior. This notice will be in at least English and Spanish, with a QR code for further information and to submit comments.

Construction

11. Traffic control equipment and personnel will be on-site to prep the location prior to shelter removal. Exact timing of this step will be determined after consultation with StreetsLA and may differ on a location-by-location basis.

12. Site work at locations receiving refurbished shelters will be performed during this time. Site prep will include installation of underground infrastructure (electric hand hole, conduit sweeps, etc.) within the bus shelter construction limits. At a later date, BSL/LADWP will install a new electrical service from the power source to the installed hand hole. A minimum of one week cure time is required after site work is complete

13. An installation crew will remove the existing shelter, and perform site cleanup per conforming best practices (such as cutting of extruded bolts, removal of debris, additional barrier tape and equipment as needed, etc.).

14. The same installation crew will install the existing shelter in the new location on the same day whenever possible. If power has been provisioned at this location, the proper power connections will be established.

15. The same installation crew will re-paint the refurbished shelter, install art and posters (if applicable), and perform site cleanup per conforming best practices.

16. Announcements will be made on a website, on social media, and in conjunction with neighborhood councils, community groups, and council district offices.

17. A construction crew will begin the demolition process at the original location. After demolition, at the same time or at another day, site preparation will take place to pour concrete.

18. Additional remediation will take place usually during this time, although certain remediation steps may take place prior or simultaneously to the demolition process.

19. A construction crew will be on site to pour the concrete. A minimum of one week cure time is required before installing the new shelter. Construction site will be barricaded and taped to ensure safety.

20. An installation crew will install the new shelter, and perform site cleanup per conforming best practices.

Site Activation

21. If power has been provisioned at this location, the proper power connections will be established. If solar has been provisioned at this location, the proper solar panel adjustments and setup will be established.

22. All shelters (except shade shelters) will have electronic components, and programming and setup will take place at this time.

23. Announcements will be made on a website, on social media, and in conjunction with neighborhood councils, community groups, and council district offices.

7. ASSET MANAGEMENT SYSTEM INTEGRATION

From Exhibit A, 2: A method for all Program Elements to be entered into StreetsLA's Asset Management System at the time each becomes revenue ready or is deployed.

Tranzito-Vector will build a custom CMS program - CurbCMS - that is built on top of its existing CurbOS to manage various shared-use mobility infrastructure assets. This CMS is meant to be lightweight and API-based to provide the City with a singular Dashboard, Notifications feature, and Reports. The CMS will contain a GIS interface that will allow for remote control of relevant functionality of street-level furniture as well as approval of ad copy.

The City has selected Cartegraph as its citywide asset management platform, and Hatch as its deployment partner to customize and onboard Cartegraph. Tranzito-Vector has had multiple meetings with representatives from Hatch and Cartegraph to understand the technical aspects of this integration, and stands ready to begin the development on our end. Cooperation from Hatch and Cartegraph is required as a next step, which requires assistance from StreetsLA.

Designworks BMW will lead the visual design of the CMS dashboard. This dashboard will be accessible by a password protected webpage. Tranzito-Vector will manage the dashboard, but StreetsLA and other designated personnel will have the ability to view program information and access on-demand reports.

As we learn more about the final shape of the solutions to be delivered through the design process we will work with the City and our construction and maintenance partners to design appropriate schemas to capture relevant information across the multiple Asset Management Systems leveraged in support of the program. We will engage with the City and their delegates to make them aware of the most relevant pieces of information to track for the future health of the program.

We will extract maintenance requests and tickets from Cartegraph and route them to the appropriate maintenance partners responsible for street furniture under the program, then route the resolution back to Cartegraph. It is our understanding that Cartegraph is ingesting maintenance requests from MyLA 311 and other sources of community reporting, and we look forward to this dialog with the public.

We expect a productive dialog with Hatch and Cartegraph on the technical abilities and facilities of the City's implementation of Cartegraph, the data requirements of the program, and the shape and structure of maintenance requests in the system. Such a dialog will be critical to the delivery of a successful integration.

ROLLOUT SCHEDULE	VERSION 2.0		
Task	Start Date	Due Date	Months
Planning A			
Software Requirements Gathering	10/4/2022	11/2/2022	4,1
Tech Evaluation and Validation	10/4/2022	11/24/2022	7,3
User Experience	10/4/2022	1/16/2023	14,9
Shelter UI Design	1/18/2023	3/9/2023	7,1
Non-shelter UX and UI Design	12/5/2022	4/30/2023	20,9
Software Development	11/3/2022	9/12/2023	44,7
Design Validation	10/4/2022	12/3/2022	8,6
Design Kit of Parts for Permit	11/3/2022	2/13/2023	14,6
Design Documentation for Fabricator	2/1/2023	3/31/2023	8,3
Industrial Design	11/25/2022	4/17/2023	20,4
Community Outreach Meetings	10/4/2022	12/26/2022	11,9
Finalize Year 1 Site List	10/18/2022	12/31/2022	10,6
Kit of Parts Codification	12/26/2022	7/4/2023	27,1
Planning A Complete	9/12/2023	9/12/2023	0,0
Rollout A (300 Digital + 105 Refurb)	1/2/2023	5/27/2024	73,0
Utility Coordination (15 sites/week)	1/2/2023	7/10/2023	6,3
Site Survey (25 sites/week)	1/16/2023	5/11/2023	3,8
Site Plans (15 sites/week)	1/23/2023	7/31/2023	6,3
Permit Applications (15 sites/week)	7/4/2023	1/28/2024	6,9
Permit Approvals (15 sites/week)	9/2/2023	3/9/2024	6,3
Construction (12 sites/week avg)	9/16/2023	5/13/2024	8,0
Installation (12 sites/week)	9/23/2023	5/20/2024	8,0
Activation (15 sites/week)	9/30/2023	5/27/2024	8,0
Rollout A Complete	5/27/2024	5/27/2024	0,0
Rollout B (359 Digital,100 Icon,161 Refurb)	1/2/2024	3/15/2025	62,6
Utility Coordination (15 sites/week)	1/2/2024	10/18/2024	9,7
Site Survey (25 sites/week)	1/16/2024	7/9/2024	5,8
Site Plans (15 sites/week)	1/23/2024	11/8/2024	9,7
Permit Applications (15 sites/week)	3/2/2024	12/17/2024	9,7
Permit Approvals (15 sites/week)	5/1/2024	2/15/2025	9,7
Construction (15 sites/week avg)	5/15/2024	3/1/2025	9,7
Installation (15 sites/week)	5/22/2024	3/8/2025	9,7
Activation (15 sites/week)	5/29/2024	3/15/2025	9,7
Rollout B Complete	3/15/2025	3/15/2025	0,0
Rollout C (480 Static:grid, 161 Refurb)	1/2/2025	3/29/2026	64,4
Utility Coordination (15 sites/week)	1/2/2025	11/11/2025	10,1
Site Survey (25 sites/week)	1/16/2025	7/17/2025	6,1
Site Plans (15 sites/week)	1/23/2025	11/22/2025	10,1
Permit Applications (15 sites/week)	3/3/2025	12/31/2025	10,1
Permit Approvals (15 sites/week)	5/2/2025	3/1/2026	10,1
Construction (15 sites/week avg)	5/16/2025	3/15/2026	10,1
Installation (15 sites/week)	5/23/2025	3/22/2026	10,1
Activation (15 sites/week)	5/30/2025	3/29/2026	10,1
Rollout C Complete	3/29/2026	3/29/2026	0,0
Rollout D (457 Static:grid, 89 Refurb)	1/2/2026	2/9/2027	57,6
Utility Coordination (15 sites/week)	1/2/2026	9/14/2026	8,5
Site Survey (25 sites/week)	1/16/2026	6/18/2026	5,1
Site Plans (15 sites/week)	1/23/2026	10/5/2026	8,5
Permit Applications (15 sites/week)	3/3/2026	11/13/2026	8,5
Permit Approvals (15 sites/week)	5/2/2026	1/12/2027	8,5
Construction (15 sites/week avg)	5/16/2026	1/26/2027	8,5
Installation (15 sites/week)	5/23/2026	2/2/2027	8,5
Activation (15 sites/week)	5/30/2026	2/9/2027	8,5
Rollout D Complete	2/9/2027	2/9/2027	0,0
Rollout E (660 Static:solar)	1/2/2027	4/2/2028	65,1
Utility Coordination (15 sites/week)	1/2/2027	11/6/2027	10,3
Site Survey (25 sites/week)	1/16/2027	7/20/2027	6,2
Site Plans (15 sites/week)	1/23/2027	11/27/2027	10,3
Permit Applications (15 sites/week)	3/3/2027	1/5/2028	10,3
Permit Approvals (15 sites/week)	5/2/2027	3/5/2028	10,3
Construction (15 sites/week avg)	5/16/2027	3/19/2028	10,3
Installation (15 sites/week)	5/23/2027	3/26/2028	10,3

ROLLOUT SCHEDULE	VERSION 2.0		
Task	Start Date	Due Date	Months
Activation (15 sites/week)	5/30/2027	4/2/2028	10.3
Rollout E Complete	**4/2/2028**	**4/2/2028**	0.0
Rollout F (644 Static:solar)	**1/2/2028**	**3/26/2029**	64.1
Utility Coordination (15 sites/week)	1/2/2028	10/29/2028	10.0
Site Survey (25 sites/week)	1/16/2028	7/14/2028	6.0
Site Plans (15 sites/week)	1/23/2028	11/19/2028	10.0
Permit Applications (15 sites/week)	3/2/2028	12/28/2028	10.0
Permit Approvals (15 sites/week)	5/1/2028	2/26/2029	10.0
Construction (15 sites/week avg)	5/15/2028	3/12/2029	10.0
Installation (15 sites/week)	5/22/2028	3/19/2029	10.0
Activation (15 sites/week)	5/29/2028	3/26/2029	10.0
Rollout F Complete	**3/26/2029**	**3/26/2029**	0.0