POTRERO HOPE SF | MASTER INFRASTRUCTURE PLAN

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FIGURES AND DRAWINGS | MASTER INFRASTRUCTURE PLAN

Figure 1.1 3D Rendering

1. INTRODUCTION / PROJECT DESCRIPTION

1.1 Purpose

This Master Infrastructure Plan (MIP) serves as an exhibit to the Development Agreement (DA) between BRIDGE Housing or its Assignees (Developer) and City and County of San Francisco (City). The DA outlines the infrastructure responsibilities of the City and the Developer. This Master Infrastructure Plan defines the site and infrastructure improvements required to construct the Potrero Hope SF Master Plan (Project), including Environmental Remediation, Demolition, Grading, Street and Transportation Improvements, Open Space and Park Improvements, Potable Water System, Combined Sewer System, Stormwater Management System, and Dry Joint Utility System, as well as associated responsible parties in charge of implementing and operating the improvements. The Inclusion of the MIP as an exhibit to the executed DA constitutes the vetting of the MIP by the various City departments responsible for approving elements of the design and construction of the Project Infrastructure. The area encompassing these infrastructure improvements consists of approximately 38-acres on the south side of Potrero Hill including the San Francisco Housing Authority Potrero Terrance and Annex parcels and the surrounding streets.

The overall project description, location, proposed streetscape and open space designs and the nature of the development within the Potrero HOPE SF site are described fully in the *Potrero HOPE SF Design Standards and Guidelines* (Potrero DSG). The definitions of terms as defined in the DA shall apply to this Master Infrastructure Plan.

1.2 Land Use Program for the infrastructure Plan

Anticipated land uses at the Potrero Hope SF Master Plan include up to 1,700 residential units, approximately 15,000 square feet of retail space and approximately 30,000 square feet of community-serving use. These land use plan numbers have been used to develop utility demands. Although, the land use plan may be adjusted in the future, subsequent to the applicable planning process, in order to implement the project. Refer to Figure 1.3 for proposed site parcelization.

1.3 Master Infrastructure Plan Overview

This Master Infrastructure Plan will govern the construction and development of infrastructure in the Project Site and off-site work needed to support the proposed development project.

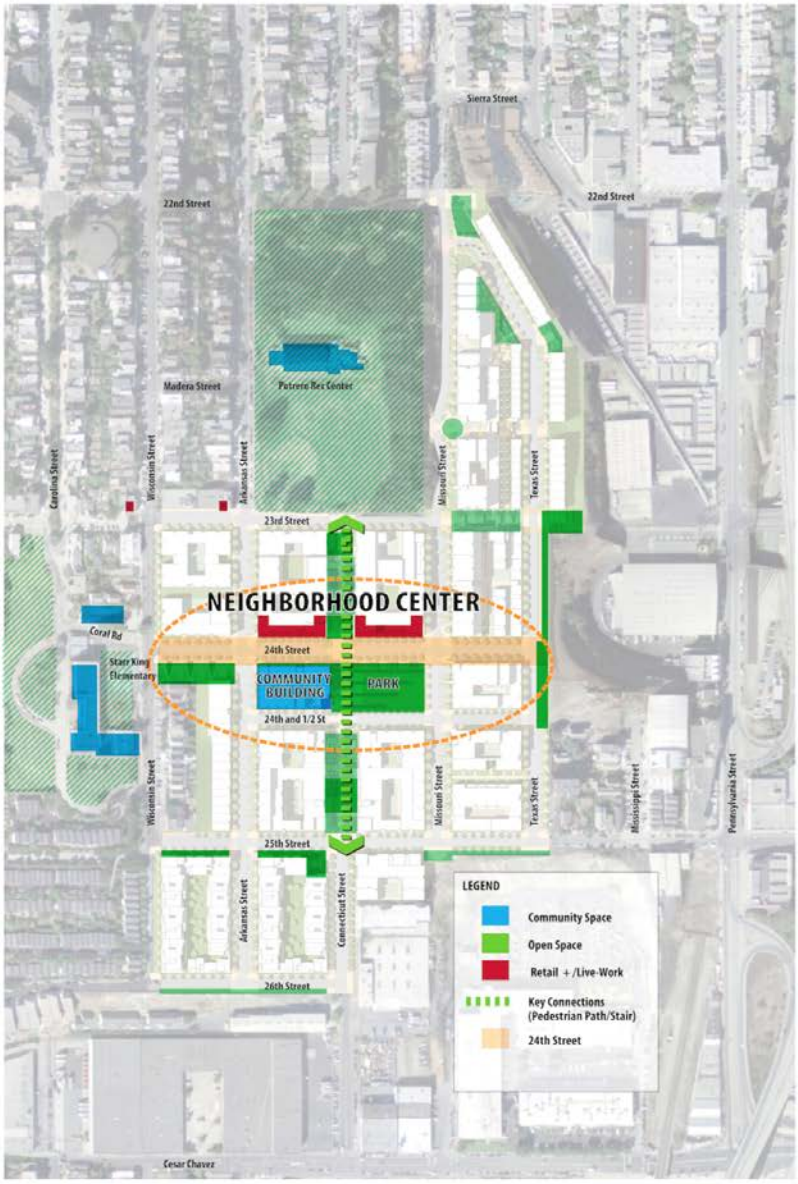


Figure 1.2 Site Plan

1.4 Property Acquisition, Dedication, and Easements

The mapping, street vacations, property acquisition, dedication and acceptance of streets and other infrastructure improvements will occur through the Subdivision Mapping process. Infrastructure described in this Master Infrastructure Plan shall be constructed within the public right-of-way or dedicated easements to provide for access and maintenance of infrastructure facilities.

Public service easements will be allowed within the Potrero Hope SF Master Plan Site as necessary to provide infrastructure and services to the Project. Proposed public water, wastewater, and power easements benefitting the SFPUC on private property will be reviewed on a case-by-case basis. Full access for vehicles and equipment for the maintenance and repair of utility mains is required. Restrictions to surface improvements in access easements will be defined in the review of the improvements for the parks and adjacent rights-of-way, in future easements, or in other interagency agreements. Public utilities within easements will be installed in accordance with the standards in this Master Infrastructure Plan and applicable City regulations for public acquisition and acceptance within public utility easement areas, including provisions for maintenance access; however, such areas shall not be required to be dedicated as public right-of-ways or improved to public right-of-way standards.

1.5 Project Datum

All elevations referred to herein are based on the City of San Francisco datum.

1.6 Conformance with EIR & Entitlements

This Master Infrastructure Plan has been developed to be consistent with project mitigation measures required by the Environmental Impact Report (EIR) and other entitlement documents. Regardless of the status of their inclusion in this Master Infrastructure Plan, mitigation measures of the EIR shall apply to the Project. Applicable sound and vibration studies required by the EIR will be completed during the approval process for each individual development block or parcel.

1.7 Applicability of Uniform Codes and Infrastructure Standards

Future modifications to City Standards, Guidelines, and Codes are subject to the requirements of the DA. The project shall adhere to the Subdivision Regulations or obtain an exception or design modification.

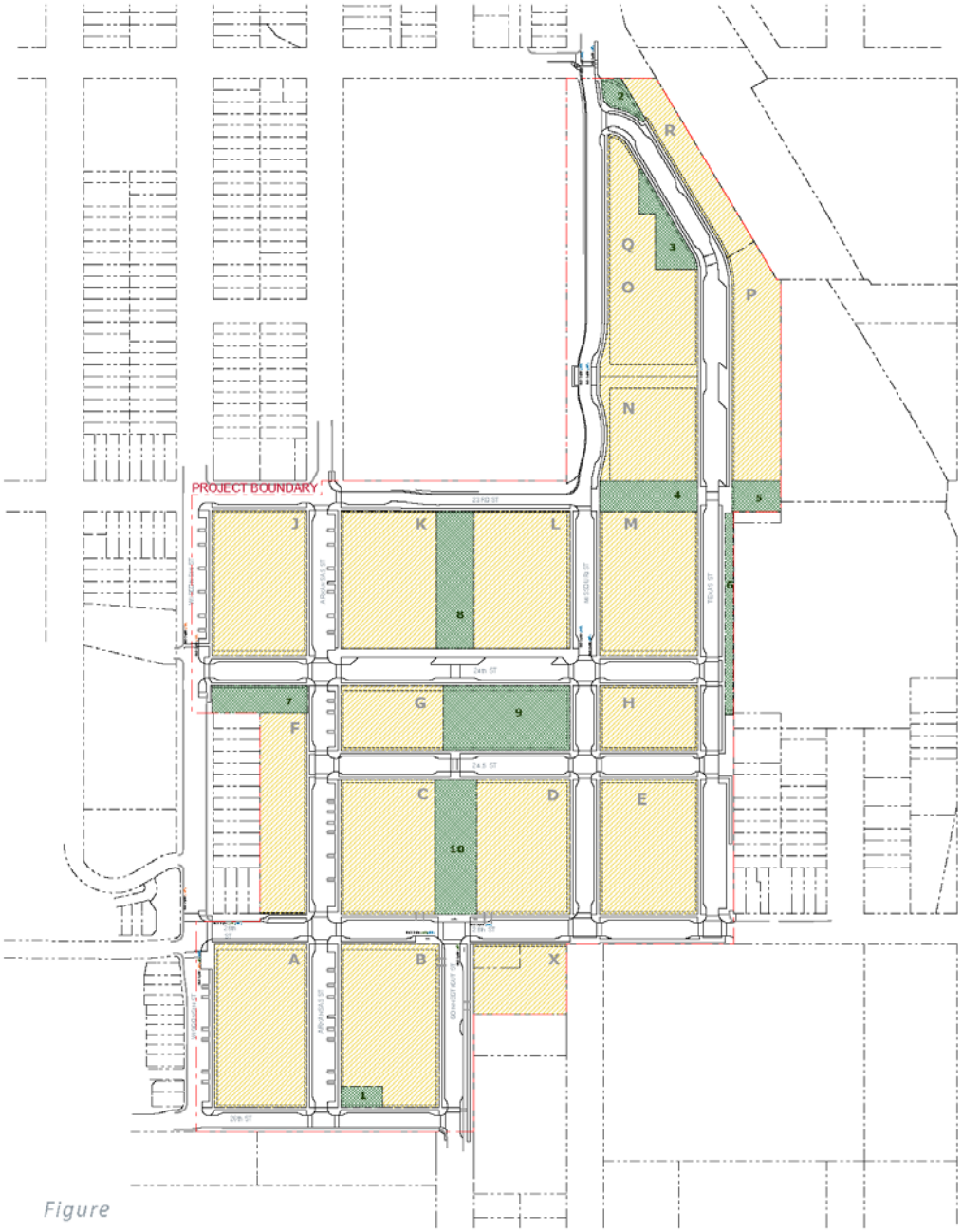


Figure
1.3 Block Diagram
(Open Space #1 may be located at illustrated location or 25th and Connecticut Street)

1.8 Project Phasing

It is anticipated that the Project Site will be developed in several phases. Each phase will be further divided into development blocks (Blocks) and parcels. The Developer shall indicate the phase limits upon submittal of each Phase Application, as further defined in the DA. Phase Applications will include a brief description of the infrastructure required to serve the proposed development phase and existing adjacent development. The Developer may submit Phase Applications, for one or more Blocks, that would include a description of utilities and transportation improvements planned for each phase and shall correspond to improvements to be provided with the applicable subdivision map. The information provided with each Phase Application will be consistent with the procedures outlined in the project DA. Developer will complete horizontal development, vertical development may be completed by other developers.

1.9 Phases of Infrastructure Construction

The Developer will design and install the new infrastructure in advance or to match the construction build out phasing of the Project and to serve the Blocks. The extent of the proposed infrastructure installation within each Block will be based on an "adjacency" principle. Adjacency, or adjacent infrastructure, refers to infrastructure that is near to and may share a common border or end point with a Block but is not necessarily immediately adjoining or contiguous with a Block, and represents the minimum necessary to serve the Block and to consolidate or minimize disruptions to the surrounding neighborhood. The infrastructure required for each Block will connect to the existing infrastructure systems as close to the edge of the proposed Block as possible with permanent and/or temporary systems while maintaining the integrity of the existing system for the remainder of the Potrero Hope SF Master Plan Site. The limits of the existing infrastructure to be demolished as well as layouts of the permanent and/or temporary infrastructure systems for each Block will be provided as part of the construction document submittals for that Block or Phase. Repairs and/or replacement of the existing facilities necessary to serve the Block will be the Developer's responsibility.

The City will be responsible for maintenance of proposed Public Infrastructure Improvements installed by the Developer once construction of the new infrastructure is complete and accepted the city. At all phases of development prior to full build out, the Developer shall demonstrate to the SFPUC that a functioning water and wastewater infrastructure system is in place at all times and complies with all City laws, codes and regulations. In addition, the Developer is responsible for maintaining a safe flow path for the 100-year storm at all times during the development. Future documentation submittal requirements are outlined in section 14 of this document.

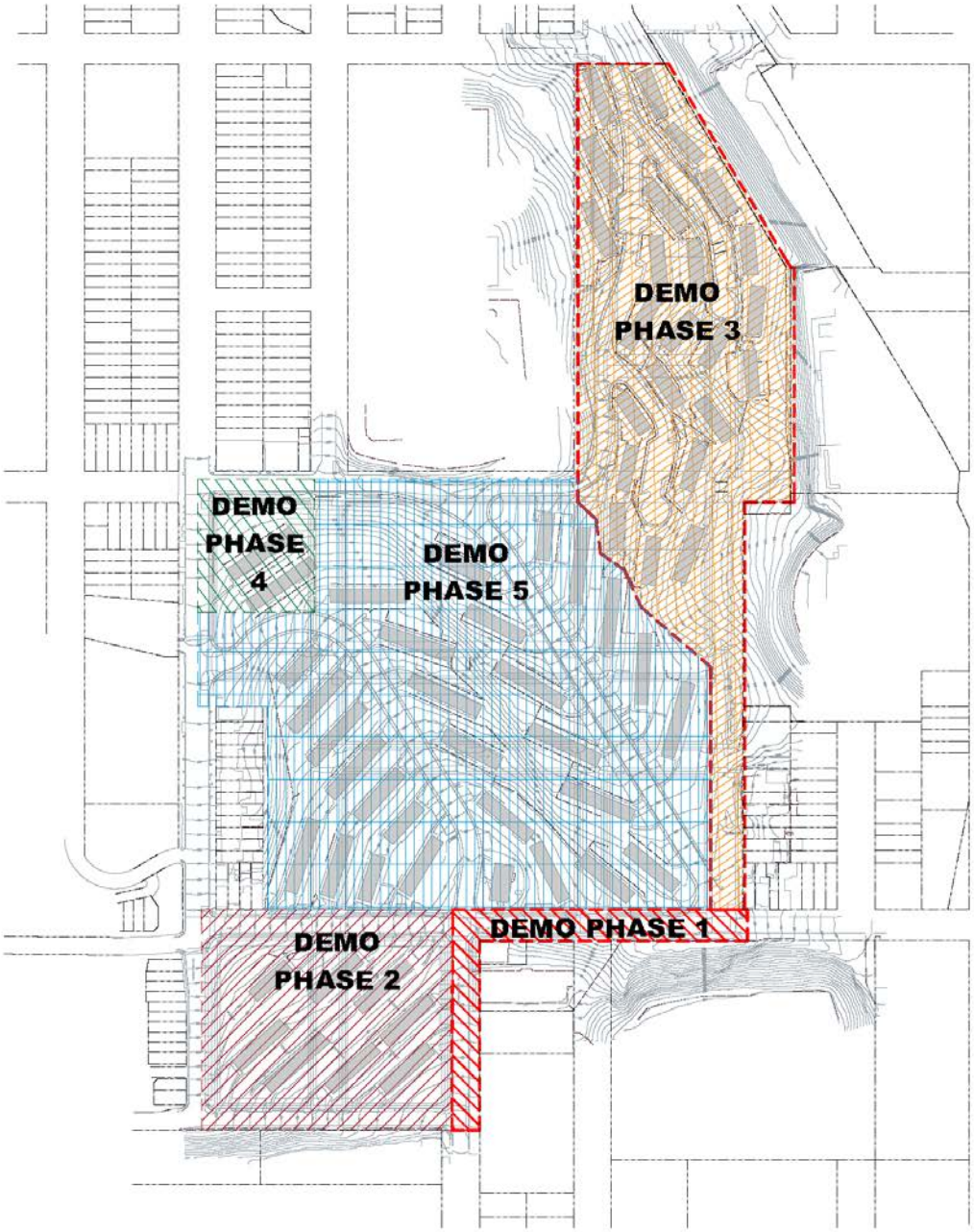


Figure 1.4a Demolition Phasing Diagram

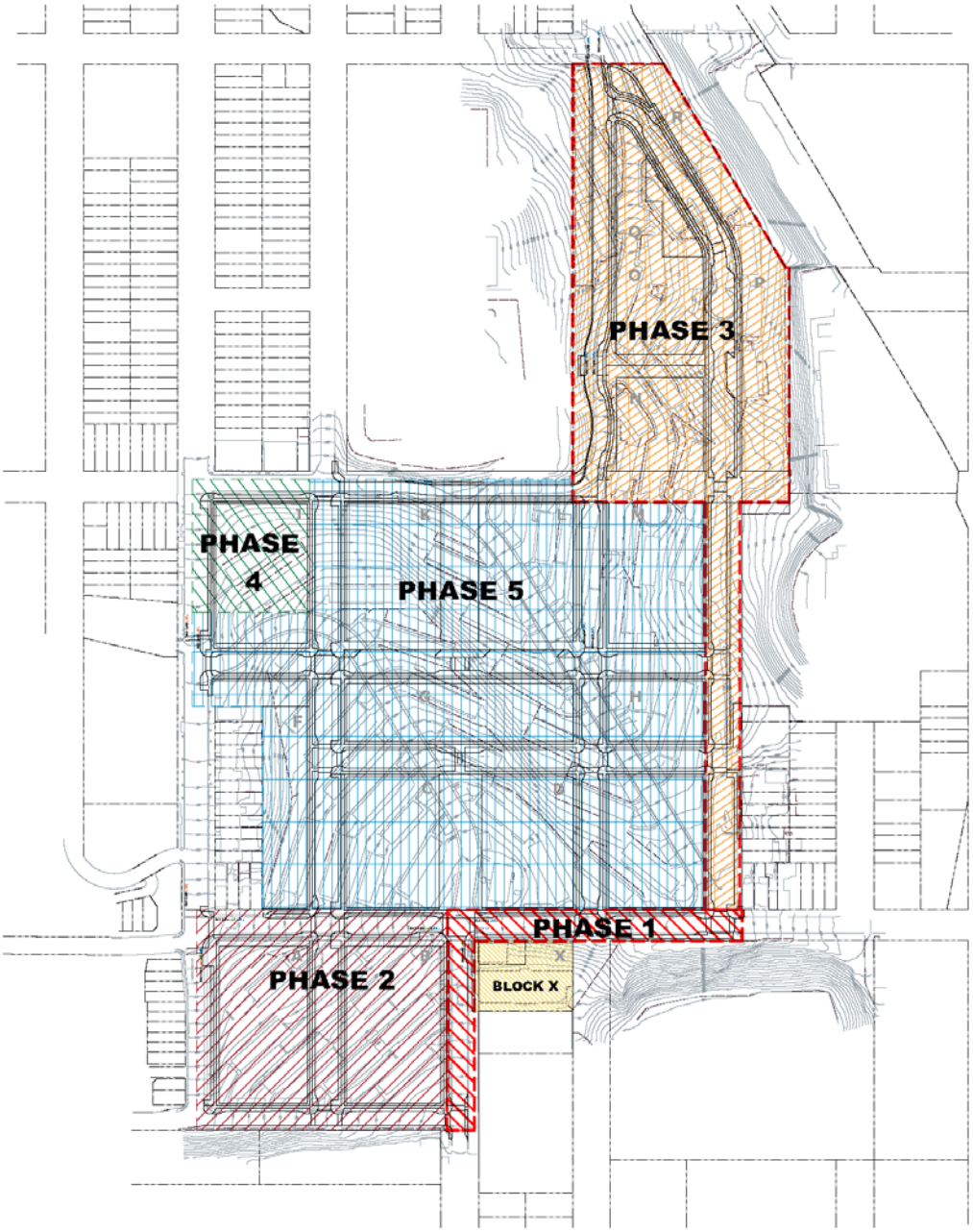


Figure 1.4b Development Phasing Diagram

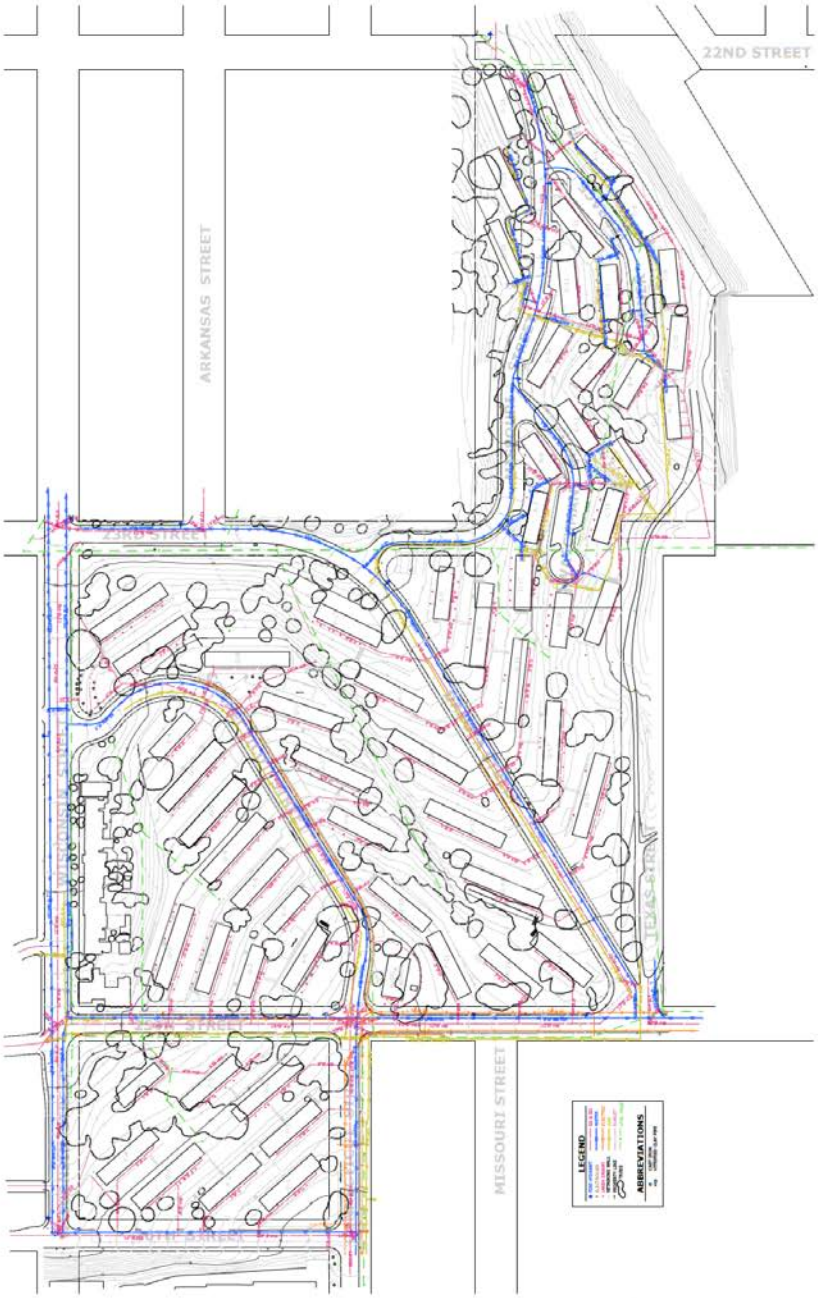


Figure 1.5 Existing Utilities (full size drawing available)

2. SUSTAINABILITY

Infrastructure is designed to facilitate the use of alternative modes of transportation, while reducing the use of resources such as water and energy. Key benefits of sustainable site design and infrastructure elements include improved health and cleaner environment. Sustainable infrastructure includes stormwater controls, transit facilities and traffic calming measures, and energy-efficient outdoor lighting. Sustainable building designs will be addressed in the individual Phase and building permit application documents. Final designs of sustainable project elements within the public rights-of-way will be reviewed as part of the Street Improvement Plans, and Stormwater Control Plan review and approval process.

3. GEOTECHNICAL CONDITIONS

Site geotechnical investigations have been completed and potential site wide geotechnical improvements have been identified by ENGEO, culminating in the development of the "Geotechnical Investigation, Potrero Terrace and Annex Redevelopment" (Geotechnical Report) by ENGEO, dated July 10, 2009.

3.1 Existing Site Geotechnical Conditions

3.1.1 Existing Site Soils

As described in the Geotechnical Report, the Project Site is underlain by serpentinite bedrock. The bedrock is generally fairly shallow, at or within 2.5' of the surface. Portions of the site contain areas that were artificially filled in a manner that will require removal and recompaction. There is also an area of highly expansive colluvium near the center of the project along Connecticut Street that will also require removal and recompaction.

3.1.2 Site Geotechnical Constraints

From a geotechnical perspective, the following are the primary issues for new development at the Potrero Site:

3.1.2.1 Differential Settlement

Due to the large depths of cut and fill on the project, the possibility of differential settlement across building footprints exists. This issue will be addressed by following the recommendations of the geotechnical report, including placing and compacting the fill in small lifts or possibly overexcavation of parts of the pad to create a more homogenous subbase below the building.

3.2 Site Geotechnical Approaches

Successful site development will require engineering design and project construction methods that account for the existing soil conditions. These improvements will help ensure that site accessibility and building access is maintained both during seismic events and as minor long-term consolidation settlement occurs.

3.2.1 Geotechnical Soil improvements

To reduce minor consolidation settlement at the site, existing weak and undocumented fill discovered beneath buildings may be over excavated and replaced with engineered fill or be remediated with soil improvements per the recommendations of the Geotechnical Engineer. Geotechnical remediation will be completed in conjunction with vertical building and infrastructure construction on individual Blocks by the Developer. Based on the results of, and if required by, final site geotechnical investigations, soil improvements required within the public right-of-way will be constructed by the Developer.

3.2.2 Building Foundations

Building foundation designs will be based on final geotechnical reports, site investigations and structural designs developed as part of the permitting process for vertical construction on the development

parcels. The Developer or subsequent owner of a development parcel will be responsible for the design and construction of building foundations.

3.2.5 Retaining Walls

It is anticipated that some of the existing retaining walls within the proposed development footprint will be modified or rebuilt due to grade changes and road realignment. The condition of retaining walls proposed to remain in place will be evaluated on a case-by-case basis during detailed design process. These walls may be seismically retrofitted or replaced to comply with City codes, the California Building Code (CBC), and the design-level geotechnical report. Where retaining walls are to be removed, proper shoring techniques, such as soldier pile and lagging systems or underpinning systems will be implemented to ensure the stability of existing site and adjacent facilities. Measures, such as the construction of new code-compliant retaining walls or retaining elements incorporated into the foundations of proposed buildings to address grade conflicts will be coordinated during the review and approval of construction documents and issuance of building permits. The retaining walls will be designed and constructed by the Developer and reviewed and approved by the DBI, the SFDRP, and the SFDPW. Where walls are located within the public rights-of-way and public parks, maintenance and ownership of the retaining wall will be the responsibility of the City upon acceptance of the final construction. Maintenance and ownership responsibilities for retaining walls constructed on private development parcels will be assigned to the owners of the individual Blocks in which the retaining walls are located. Design and Installation of interim retaining walls required to support the development of proposed on-site streets will be the responsibility of the Developer.

3.2.6 Flexible Utility Connections

Portions of the site may experience differential settlement at the interface of pile supported buildings and the utility connections. Differential settlement at these locations may cause the utility connections to shear and break along this plane. Where required, flexible utility connections incorporating such solutions as flexible pipe materials, ball joints or settlement vaults, will be installed at the face of the building to mitigate the displacement of the utility connections and ensure continuous utility service.

3.2.7 Building Access

Settlement of the ground plane is anticipated in certain areas of the site due to an increase in fill depths and existing compressible clay soils. Where a pile-supported building structure interfaces with the on-grade public streetscape, differential settlement may occur where the compressible material beneath the street begins to settle relative to pile supported buildings. To mitigate areas where differential settlement is anticipated, grading and building designs will incorporate measures to ensure that continuous accessible paths of travel are maintained where building access points and private passageways interface with the public right-of-way.

Measures, such as hinge slabs, gangways and other adjustable surfaces, will be designed to accommodate the maximum anticipated long-term consolidation differential settlement. Alternatively, the project may consider a surcharging program, which induces consolidation settlement prior to the construction of new improvements to reduce, and possible eliminate, the need for project specific differential settlement design mitigations.

3.3 Phase of Geotechnical Stabilization

Geotechnical stabilization will occur in phases to match the development sequence of the Blocks. The amount of stabilization will be the minimum necessary for the Block. The stabilization of smaller areas will allow the existing utility services and vehicular access areas to remain in place as long as possible in order to reduce disruption of access to the Blocks.

3.4 Schedule for Additional Geotechnical Studies

Geotechnical Reports to support the development of private building parcels will be prepared and submitted to the City as part of the building permit process.

3.5 Environmental Remediation

Special measures as directed by the Geotechnical Engineer may be necessary due to the high concentration of serpentinite soil and bedrock on the site. Naturally occurring asbestos(NOA) derived from the weathering of serpentinite has been found at the site. According to the geotechnical investigation, existing site soil free of organic material is suitable for use as engineered fill. If there is excess soil that contains high concentrations of the naturally occurring asbestos, it will be hauled offsite to a facility approved for handling these materials. The project geotechnical engineer will establish the necessary protocols for controlling air borne dust generated by the project's earth moving operations.

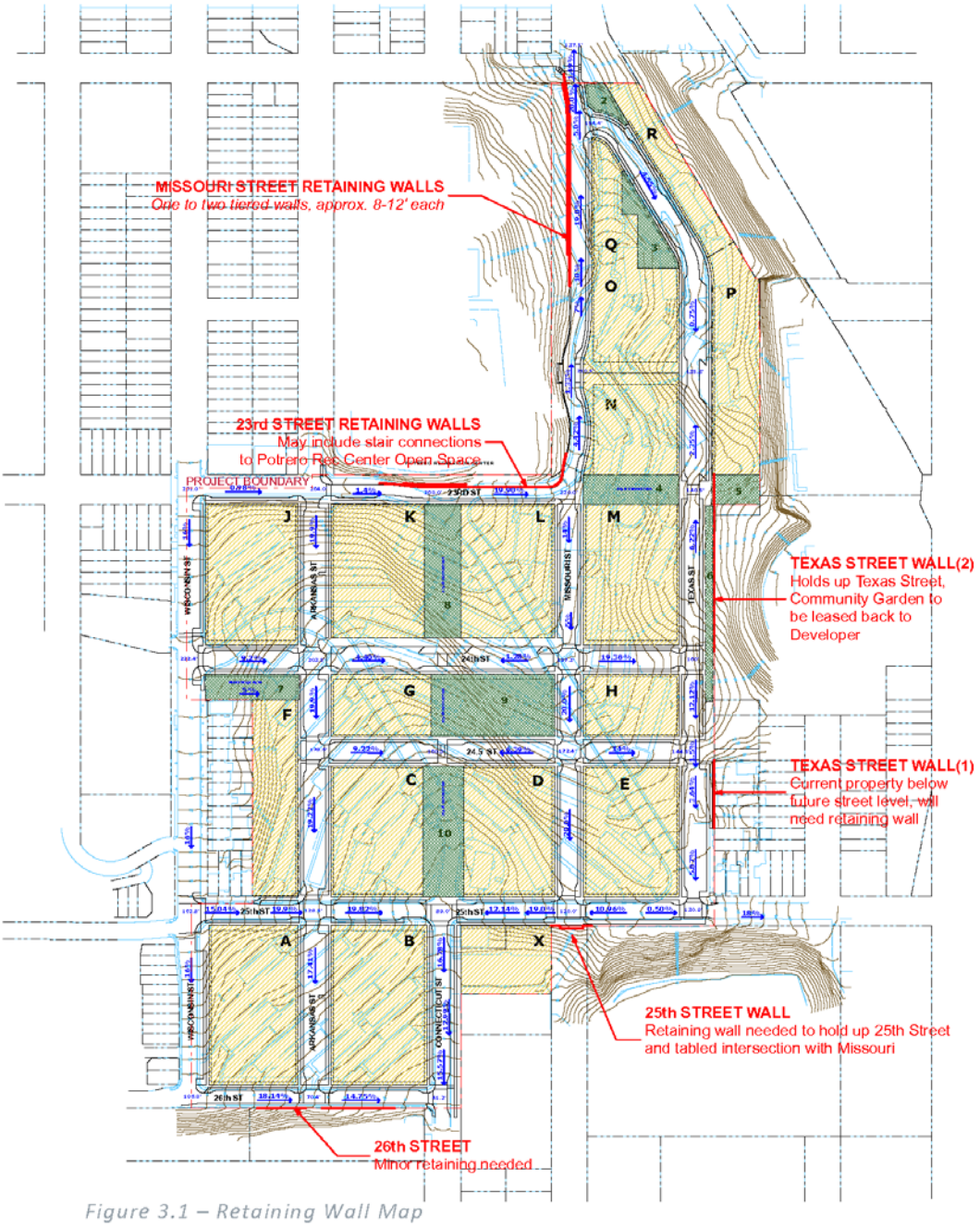


Figure 3.1 – Retaining Wall Map

4. PHASING AND DEMOLITION

4.1 Scope of Demolition

The Developer will be responsible for the demolition and deconstruction of all non-retained existing buildings and infrastructure features within the project boundaries. The design of permanent retaining walls to be integrated into buildings and streets will be reviewed and approved by the DBI and the SFDPW during the building design and permitting process and/or project construction documents. Remaining utility materials, primarily metals, will be recycled as feasible. Where transite pipe (asbestos-cement pipe) is encountered, appropriate abatement methods will be used to satisfy applicable regulatory agency requirements.

The Developer shall also be responsible for providing for the permanent improvements proposed to replace the existing improvements in accordance with the approved building and construction permits issued by the City. The extent of these improvements and associated demolition will be determined during the construction document approval process.

4.2 Demolition By Phase

The Developer will be responsible for demolition of existing buildings and infrastructure within the footprint of a phase prior to construction of the phase. Additional demolition for each phase may be required to allow construction of the improvements necessary to support a building or infrastructure phase. The limits of the existing infrastructure to be demolished as well as layouts of the permanent and/or temporary infrastructure systems for each Block will be provided as part of the construction document submittals for that Block or Phase. Repairs and/or replacement of the existing facilities necessary to serve the Block will be the responsibility of the Developer.

4.3 Environmental Remediation

Any asbestos, lead, or similar materials encountered during building demolition will be handled and removed using appropriate abatement methods by trained personnel according to applicable regulatory agency requirements.

5. SITE GRADING

5.1 Existing Site Conditions

The existing grade within the Project Site slopes steeply downward from north to south. At the western edge, the site is bounded by and conforms to the existing grades along Wisconsin Street and some existing residences. To the east, the northern area is elevated above the existing Sherman Little property and the Food Bank while the southeastern edge is at grade along Texas Street. The ground elevations range from approximately 40 (SF Datum) in the southern portion of the site at the intersection of Connecticut and 26th Street to approximately 264 (SF Datum) near the intersection of 23rd and Arkansas.

5.2 Project Grading Requirements

5.2.2 Consolidation Settlement

Appropriate measures such as soil and foundation improvements will be constructed by the Developer to minimize differential settlement across the building parcels. To mitigate areas where differential settlement is anticipated, grading and building designs will incorporate measures to ensure that continuous accessible paths of travel are maintained where building access points and private passageways interface with the public right-of-way. Measures, such as hinge slabs, gangways and other adjustable surfaces, will be designed to accommodate the maximum anticipated long-term consolidation differential settlement.

5.3 Site Grading Designs

The Developer will be responsible for the design and construction of the proposed grading plan for the Project Site. Proposed grading designs for the development will match the existing north to south drainage pattern of the existing site. To ensure proper overland release and provide Americans with Disabilities Act (ADA) accessible sidewalks where feasible, a new street grid will be established on the site. Due to the steepness of the site, it is difficult to achieve the grades required to meet ADA requirements. The project will be designed such that the core of the project along 24th Street will have grades less than 5% and buildings that serve the entire community will be concentrated here. Throughout the site, grades less than 5 percent are provided as a first priority item, where feasible. As required due to site constraints, public access areas with slopes exceeding 5 percent but less than 8.33 percent will include handrails per Code requirements. Site grading to meet City Agency requirements and standards. The conceptual grading plan for the Potrero Hope SF Master Plan Site is included in Figure 6.1.

5.3.1 Proposed Site Grading at Conforms

Conceptual grading designs generally conform to the existing grades along the northern interface with the Potrero Hill Recreation center and the existing grades along Wisconsin Street at the western edge of the project. At the southern boundary of the project, 26th Street will be re-constructed to provide for the intersection with the extension of Arkansas Street. The eastern edge of the property will be graded to meet the grades near the existing top of slope. A retaining wall may be necessary to support community gardens along the central portion of the east side of Texas Street.

As more detailed designs are developed during the Grading and Overland Release Master Plan and construction document review processes of the project, the grading at conforms may require adjustment and refinement based on future coordination with the SFDPW.

5.3.2 Proposed Roadway and Building Areas

The proposed on-site street grid will be graded to provide overland release for the Project. As required by-the SFPUC, grading and hydrology designs will be developed such that the 100-year HGL is contained within the top of curb elevations on opposite sides of a street throughout each phase of the development.

Site development and grading designs will be developed to comply with the codified requirements for accessible paths of travel. Where feasible, proposed slopes along public street and private alleys will be set at a maximum of 5 percent to provide ADA accessible pathways of travel without requiring handrails. Outside of the street sidewalks, where accessible pathway slopes range between 5 percent and 8.33 percent, code-compliant ramps will be designed.

At street intersections, grades will be tabled at a maximum slope of 2% to provide an accessible path of travel in crosswalks. In addition, vertical curves within the streets will be designed to both begin and end outside the limits of the crosswalk areas. Review and approval of the overland release solution will occur during the master plan approval process described in Section 13. Construction of the overland release solution at this location will be the Developer's responsibility with ownership and maintenance responsibilities borne by the SFPUC or another City agency

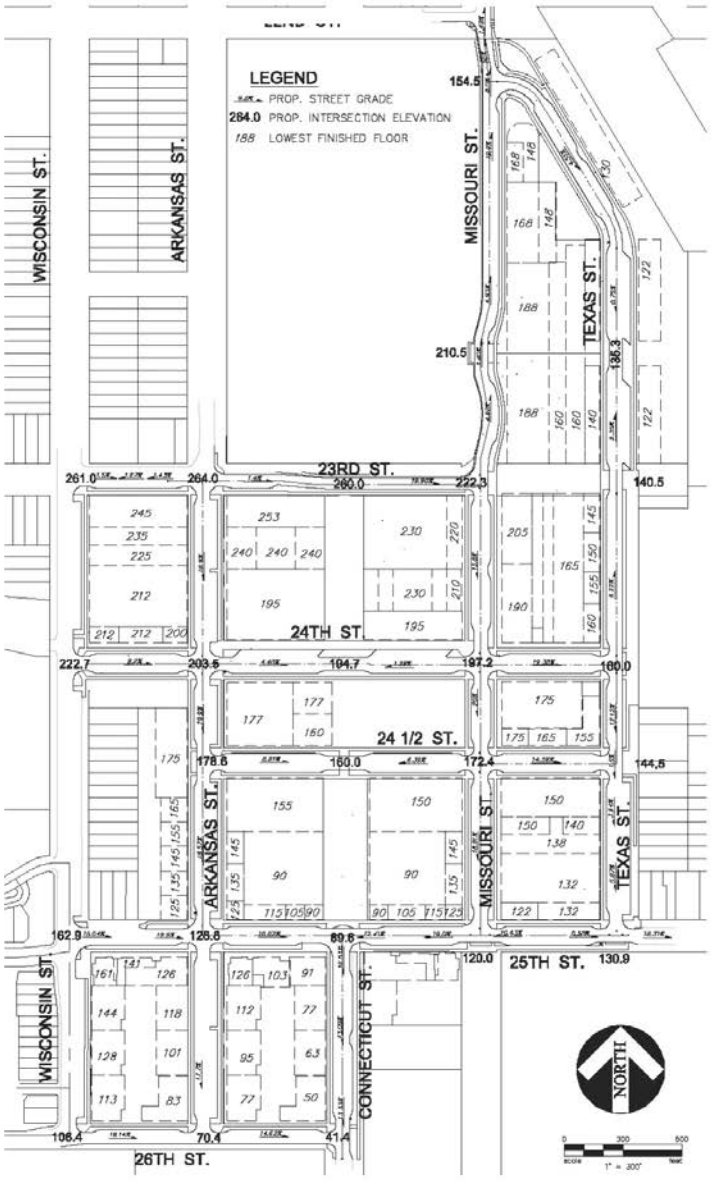


Figure 5.1 Conceptual Grading Plan

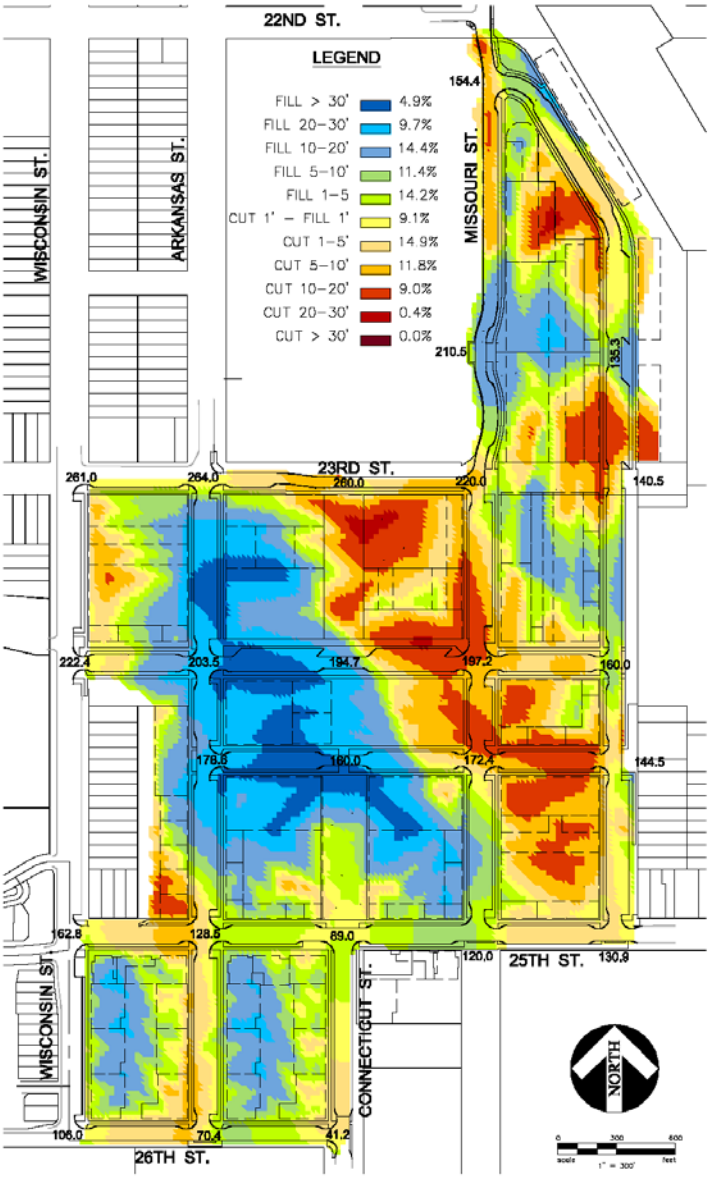


Figure 5.2 Site Earthwork Cut Fill Analysis

5.4 Proposed Site Earthwork

It is anticipated that the site earthwork will result in a net import of soil. Since preliminary design activities are still on-going, the earthwork quantities will be determined at later stages of the design. Earthwork activities for the project will comply with the state construction General Permit. To support future grading activities, a Storm Water Pollution Prevention Plan/Erosion and Sediment Control Plan will be submitted in parallel with future grading permits. The Developer will perform grading in conjunction with site remediation efforts.

5.5 Phases of Grading Activities and Approvals

The proposed rough grading will be completed in phases larger than the Blocks of the project, due to the large volumes of cut and fill necessary to achieve the street grid. The three primary phases of rough grading will be the southern (south of 25th Street), the northern (north of 23rd Street) and the central (the project area between 23rd and 25th Streets). Additionally, there may be smaller fine grading phases that would include the amount of grading that will be the minimum necessary for an individual Block. The phasing of grading will allow the Project to minimize the disruption to the adjacent and future built uses at the site, and to limit the amount of export required for any given rough grading phase. Impacts to improvements installed with previous phases of development due to the designs of the new Block will be the responsibility of the Developer and addressed prior to approval of the construction drawings for the new Block.

A Grading and Overland Release Master Plan and a Combined Sewer Master Plan will be submitted to the SFPUC and SFDPW for review and approval as outlined in Section 13. Comments provided by City and its agencies on the Master Plans will be incorporated.

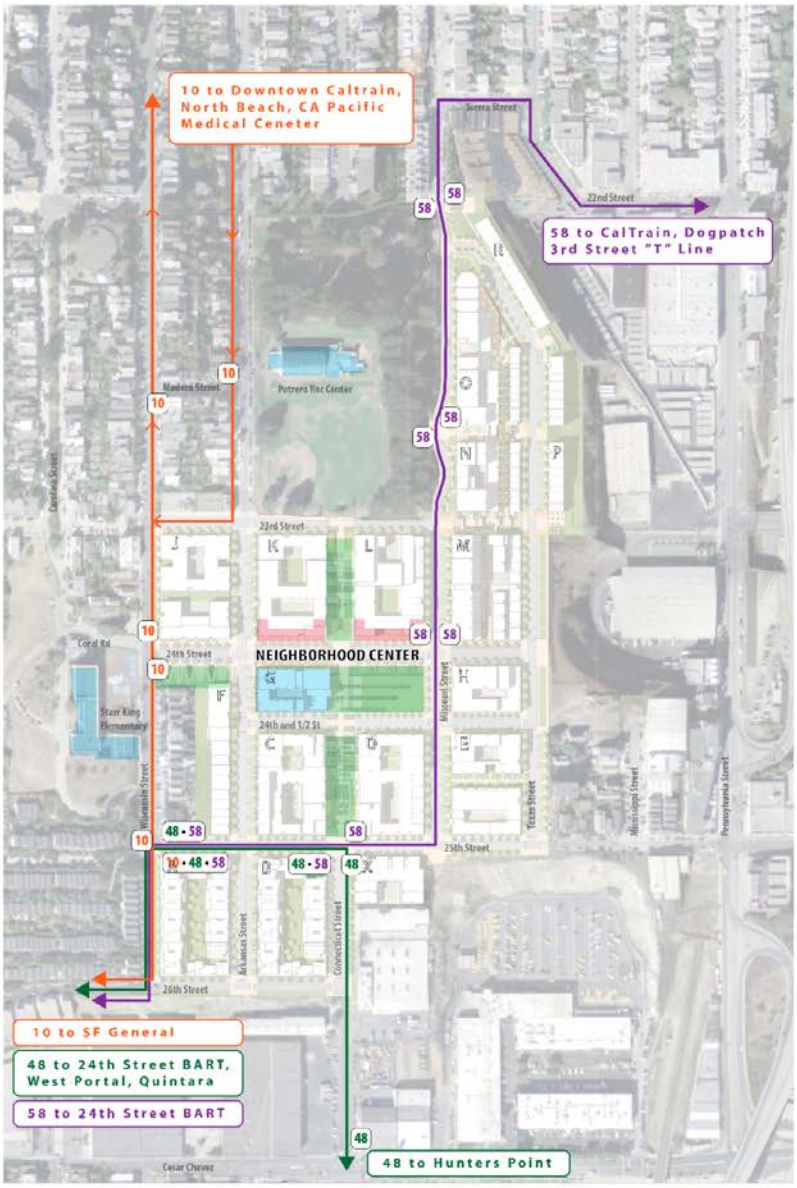


Figure 6.1 Public Transportation System Diagram

6. STREET AND TRANSPORTATION DESIGNS

The development of the Project Site is designed to connect and integrate the site with the rest of Potrero Hill. The alignments of existing streets adjacent to the site will be extended into and through the project area. The existing street network with Connecticut and Dakota Streets running up valley and ridge will be reconfigured to allow for through streets and create a relatively flat area along 24th Street between Arkansas and Missouri Streets. The new 24th Street will become the neighborhood center for the new development with small-scale neighborhood retail, community facilities and services, senior housing, and new gathering spaces including the Connecticut Stair, a retail plaza, and a central park. Additional descriptions of the streetscape are in the *Potrero Hope SF Design Standards and Guidelines*.

6.1 Public Transportation System

The Project site currently has three MUNI bus lines running through it, the 10, 19 and 48. The 22nd Street Cal Train station is approximately ½ mile from the center of the site. The SFMTA's Transit Effectiveness Project (TEP) will be implemented during the design/construction phase of this project. After the TEP, the 10, 48, and 58 bus lines will run through the site. The design team is working with the SFMTA to locate the bus routes and stop locations, location of pus stops and routes are subject to change through the MUP process.

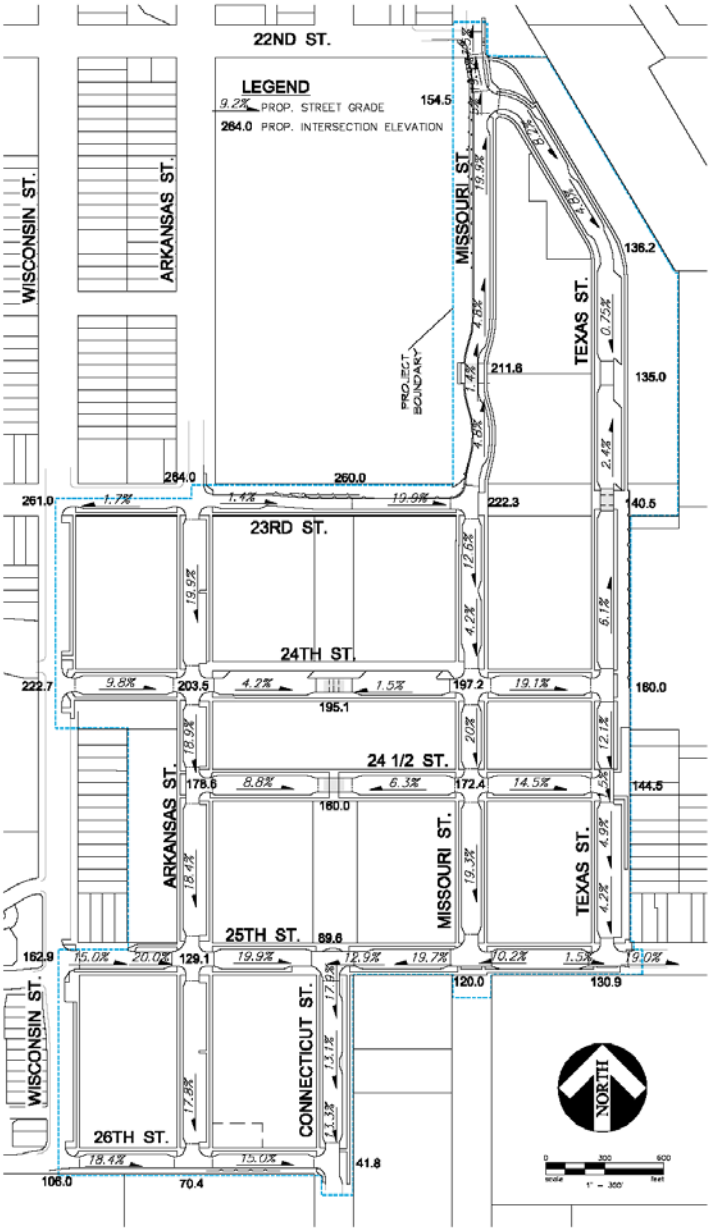


Figure 6.2 Conceptual Site Plan and Street Layout

6.2 Public Street System

The Developer will be responsible for the design and construction of the public streets. The City will only accept fully completed streets.

Improvements will generally include the following:

- Pavement section
- Concrete curbs and gutters
- Concrete sidewalk and curb ramps
- Traffic control signs and striping
- Traffic signals
- Street lighting
- Street landscaping and trees
- Stormwater controls (may include such methods as landscape strips, permeable pavements, and small bio-retention planters or swales)
- Street furnishings (includes, but are not limited to, benches, trash cans, bike support facilities and supplemental pedestrian scale lighting)
- Accessible on-street passenger loading zones with adjacent street level passenger loading aisles and curb ramps.
- Accessible on-street parking spaces with adjacent curb ramps.

6.2.1 Public Street Layout and Parcelization

A grid system of streets has been established in the project site that connects with the existing grid in the surrounding neighborhood. Within the grid, individual blocks have been given letter designations to facilitate planning and design coordination as shown on Figure 1.3. 24.5th Street is a temporary street name for planning use with a final street name to be selected in the future. The proposed public street network for the Project Site is shown on Figure 6.2. Typical cross sections for these streets are based on those shown in the Potrero Hope SF *Design Standards and Guidelines* and included on Figures 6.3 through 6.8.

6.2.2 Roadway Dimensions

The dimensions provided in the *Potrero Hope SF Design Standards and Guidelines* consistent with this Master Infrastructure Plan indicate the vehicular, curb-to-curb lane widths. Street dimensions and configurations vary throughout the site. Street sections designated on Figure 6.3 are shown in Figures 6.4 to 6.10. Operational road widths outlined in this document and the DSG document are maximums and may be reduced during Phase Application pending the approval of all necessary City Agencies including Planning, SFDPW, SFMTA, SFPUC and SFFD.

Due to the steep topography of the site, there are no proposed official bicycle facilities on the site.

6.2.3 Landscape, Sidewalk and Setback Zone Dimensions

The dimensions provided in the *Potrero Hope SF Design Standards and Guidelines* illustrate the sidewalk designs and required setbacks. The typical sidewalk design includes a 6 ft landscape/furnishing zone with a minimum 6 ft sidewalk throughway. Except where noted in the *DSG Document*, the minimum front setback for buildings is 5 feet. The sidewalk is to be designed with a continuous slope that follows the street grade.

Code-compliant accessible curb ramps, including, a 2-foot wide gutter pan for the full width of a crosswalk, will be provided at street corners to provide for pedestrian access across public streets.

6.2.4 Retaining Walls Supporting Streets and Public Rights-of-way

In order to install the streets and related infrastructure as outlined in this Master Infrastructure Plan, it is necessary to install a number of engineered retaining walls to support the new public rights-of-way and/or new open spaces. The Developer and Public Works have agreed to terms outlined in Exhibit U of the Development Agreement to guide the location and construction of these infrastructure improvements, and if certain conditions are met, allow for the dedication of, and the acceptance by, the City as Public Infrastructure Improvements with the City responsibility for the owner ship and maintenance.

Retaining walls are anticipated in the following locations: Portions of Texas Street and the community gardens between the 23rd Street right of way and 24th Street will be supported by a retaining wall. The existing terrain drops away in this area and the roadway will need to be higher than existing ground in order for the street to be navigable. The wall will be designed and constructed to comply with City and County of San Francisco codes, the CBC, and the design-level geotechnical report. The design will account for vehicular live loads as necessary. The City will own and maintain the wall that extends to the eastern property line. BRIDGE, the maintenance association or a related entity will lease the portion of the right of way behind the curb in order to install and manage community gardens and BBQ/Picnic facilities in this area.

Additionally the northern portion of Missouri Street and 23rd Street may require retaining walls to bridge the grade difference between the proposed development and the existing Potrero Hill Recreation Center. These walls will be designed and constructed to comply with City and County of San Francisco codes, the CBC, and the design-level geotechnical report. Ownership and maintenance of the walls will be controlled by the City in a right of way that extends to the existing property line to the west and north.

Retaining walls may be needed on 26th and 25th Streets to support the public right-of-way associated with tabling the intersections at Arkansas and Missouri Streets. The City will own and maintain the wall that extends to the existing property line to the south.

6.3 Streetscape Design Considerations and Elements

6.3.1 Traffic Calming

As outlined in the *Potrero Hope SF Design Standards and Guidelines,* the site is designed with a variety of traffic calming measures to improve non-vehicular traffic and safety access. The traffic calming measures included include raised intersections, raised crosswalks, bulb-outs at intersections, back-in and head-in parking stalls with planted islands to reduce the visual width of the streets.

6.3.1.1 Raised Intersections and Raised Crosswalks

To accent the pedestrian stairs and passageways along the Connecticut Street Stair and the 23rd Street Stairs raised intersections/crosswalks are proposed on 24th Street, 24.5 Street and where 23rd Street Stair meets Texas Street. At these locations the street pavement areas will be raised approximately 6 inches to be at or neat to the curb heights adjacent to the intersection and crosswalks. If accessibility guidelines and overland release requirements cannot be met at the raised intersection, the project will review options for incorporating an at-grade crossing with accessible curb ramps at these locations.

The intersection of Connecticut and 25th Streets is seen as an important gateway to the project and a special condition to slow traffic and provide for enhanced pedestrian facilities. Due to the bus stops and street geometries at this location, the intersection is proposed to be decorated with special paving or stamped concrete to signify the importance of the intersection. 6-inch curbs will be maintained.

The design for these intersections and crosswalks will be coordinated with and are subject to the approval of the SFPUC, SFDPW, the SFMTA, and the San Francisco Fire Department (SFFD). All paving will conform to DPW standards and be maintained by DPW as part of the public ROW.

6.3.1.2 Bulb-outs and Curb Extensions

The majority of all intersections are designed with bulb-outs with the exception of streets that require MUNI buses to make right-hand turns. The bulb-outs at intersections are designed with a 24 ft minimum curb-to-curb dimension and curb radii to meet SFFD and SFMTA turning radius requirements. Midblock bulbouts are designed with a 22 ft minimum curb-to-curb dimension. Bulb-outs will be designed in accordance with the horizontal separation distance requirements for subsurface utilities such as pipes, sewers, etc. as identified in the CCSF Subdivision Regulations.

The final design for the bulb-outs will be coordinated with the SF Planning, SFMTA, SFDPW, SFMTA, SFPUC and the SFFD. Bulb-out improvements will be constructed if the designs can meet the SFDPW and SFPUC requirements for overland drainage release, utility clearances and accessibility for persons with disabilities.

6.3.1.3 Head-in Parking Stalls

Head-in parking stalls are proposed on the east side of Wisconsin, Arkansas, and Texas Streets. Head-in parking is typical along the north/south streets on Potrero Hill due to the steep streets and wide public ROW's. The proposed design uses this street typology throughout the project. The typical head-in space is designed with a 16 ft deep parking space with a planned 2 ft overhang into the landscape/furnishing zone. At regular intervals, planting islands will be located between parking stalls to

provide for additional street trees that will visually reduce the width of the street. Planting islands cannot interfere with utility clearances. Gutters will be located adjacent to the through lanes. To accommodate the head-in stalls, the through lanes are designed with a minimum width of 11 ft 6 inches. The final design of the head-in parking stalls will be coordinated with the SFMTA and SFDPW.

6.3.1.4 Back-in Parking Stalls

Back-in parking stalls are proposed along the mixed-use portion of 24th Street between Arkansas and Missouri streets and along the northern section Texas Street. The back-in parking along Texas Street is designed with a 16 ft deep parking stalls and 11 ft 6 in. through lanes. Along 24th Street the parking stalls are designed at 17 feet deep to provide easier access in an out of the spaces due to the higher turnover rate adjacent to the retail and community services.

6.3.2 Fire Department and MUNI Access

Based on meetings with the SFFD, intersection radii, street widths, building setbacks and public right-of-way layouts have been designed to accommodate operational access and fire truck and engine turning movements as documented in Figures 6.11 and Appendix A. The WB-40 design vehicle was used for all intersections. Turning radii for MUNI routes were vetted and approved by SFMTA.

Approach and departure from intersections will be designed with a minimum 30' vertical curve in accordance with vehicle clearance diagrams and drawings reviewed by SFFD and SFMTA. See vertical clearance diagrams in Appendix C. Adequacy of clearances will be verified following construction of PHASE 1 (Connecticut Street between 26th and 25th Streets and 25th Street between Connecticut and Texas Streets).

6.3.3 Street Pavement Sections

The structural pavements cross-section for the vehicular travel lanes on all new public roadways will comply with the requirements of the San Francisco Subdivision Code. Vehicular travel way structural cross sections will typically consist of 8-inches of Portland Cement Concrete and a 2-inch asphalt concrete wearing surface for proposed on-site streets and shall be designed to the AASHTO rigid pavements design method using a 40-year design life. Any surface traversed by fire department vehicles shall be designed to support a minimum vehicle weight of 70,000 lbs. and 50 p.s.i. point of pressure and shall be an all-weather driving surface. Streets steeper than 17% will not have an asphalt concrete wearing surface per the Subdivision Regulations.

Painted concrete, special striping or other special decorative treatment, meeting accessibility requirements as determined by the SFDPW, may be used at raised crosswalk and intersection locations in conformance with the *Design Standards and Guidelines*. Final special pavement designs are subject to the approval of the SFDPW and SFPUC during the construction document phase of the project and shall be designed to the AASHTO rigid pavements design method using a 40-year design life.

The use of alternative pavements in the public right-of-ways described above or other alternative pavement sections, such as asphalt concrete wearing surface over Class 2 aggregate base, porous paving in sidewalk, and decorative pavement (patterned concrete, patterned asphalt, paving stones, etc.) are subject to review and approval by the SFDPW and SFPUC. The project maintenance association will be

responsible for maintenance and restoration of the roadway section within areas with special striping or decorative treatments.

6.3.4 Proposed Street Lights

The Developer will design, layout and install the proposed project street lights. Street lighting shall comply with City of San Francisco standards for photometrics and acceptable fixtures per SFPUC. City standard street lights will be used. Building mounted lights are recommended where buildings flank the pedestrian alleys or paths. The street and pedestrian light poles and fixtures shall comply with the SFPUC Streetlight Design Guidelines and Requirements," and the final pole and fixture selection shall be approved by the SFPUC. As necessary, temporary park pole light standards will illuminate any sidewalks or temporary pathways that are constructed to provide pedestrian access before the adjacent buildings are complete and building mounted lights are operational. Building mounted lights shall not be used to satisfy lighting requirements in the public right-of-way, and the City will not accept such lights for ownership and maintenance. The electrical service for the street lights will be located within the joint trench (refer to Section 12).

The 60% and 95% street light construction documents and specifications will be submitted to the SFPUC for review, comment and approval prior to construction. Streetlights located on privately-owned (but publicly accessible) pedestrian streets will be owned and maintained by the private property owners.

6.4 Off-site Traffic Signalization

Off-site traffic signalization shall be provided as described in the Mitigation and Monitoring and Reporting Program approved as part of the Project's Environmental Impact Report.

6.5 On-site Traffic Control

Traffic calming and stop-controlled intersections, rather than signalization, are the primary strategy for on-site traffic control. Stop signs will be added at most of the intersections, with final locations to be coordinated with the City and based on a stopping sight distance requirements and project phasing. Additional descriptions of the streetscape traffic control elements are included in the Streetscape Master Plan. If implemented, stop signs on city streets will require legislation from SFMTA Board and traffic calming may also require SFMTA Board and/or public hearing.

6.6 Acceptance and Maintenance of Street Improvements

Upon acceptance of the new and/or improved public streets by the SFDPW, responsibility for the operation and maintenance of the roadway, streetscape elements, and retaining walls will be designated as defined in the various City of San Francisco Municipal Codes. Acceptance of water, wastewater, and power utility infrastructure and streetlights within street improvements shall be subject to SFPUC approval. Street improvements installed to meet the SFPUC stormwater management requirements will be maintained by the private property owners or their Assignees. The use of stormwater controls in public ROW must be reviewed and approved by SFPW and SFPUC within the Stormwater Management Master Utilities Plan and will be subject to encroachment permit obligations.

6.7 Phasing of New Roadway Construction

The Developer shall indicate the phase limits upon submittal of each Phase Application, as further defined in the DA. Phase Applications will include a brief description of the infrastructure required including new roadway system and traffic control improvements to serve the proposed development phase. The amount of the existing roadway repaired and/or replaced will likely be the minimum necessary to serve the Phase. Repairs and/or replacement of the existing facilities necessary to serve the Block will be designed and constructed by the Developer. Fire truck turnaround areas, if any, will be coordinated with the SFFD and constructed by the Developer consistent with the Fire Code. Phasing of off-site improvements will be based on cumulative development thresholds identified by the project traffic consultant and/or the SFMTA coincident with the Phase applications, construction documents or as stated in the DA. Sidewalk and other accessible pedestrian paths of travel, either permanent or temporary, shall be provided to serve the pedestrian entrance and exit requirements of each block prior to being released for occupancy. Such paths of travel will connect to the existing neighborhood sidewalks and hence to the public transit stations and bus stops thereon.

Impacts to improvements installed with previous phases of development due to the designs of the new phase will be the responsibility of the Developer and addressed prior to approval of the construction drawings for the Block.

6.8 SFMTA Infrastructure

Where required, the following list of infrastructure items includes items to be owned, operated and maintained by the SFMTA within public rights-of-way:

- Security monitors and cameras
- Signals and Signal Interconnects, including Muni Bus Prioritization signals
- TPS signal preempt detectors
- Conduit containing TPS signal cables
- Shelters
- Paint - poles and asphalt delineating coach stops
- Asphalt painting for transit lanes
- Departure prediction ("NextBus") monitors and related communications equipment
- Bicycle racks
- Crosswalk striping, except for areas with a raised intersection/crosswalk or with painted concrete special striping or other special decorative treatment
- Bike lane and facility striping
- APS/Pedestrian crossing signals
- Street Signs

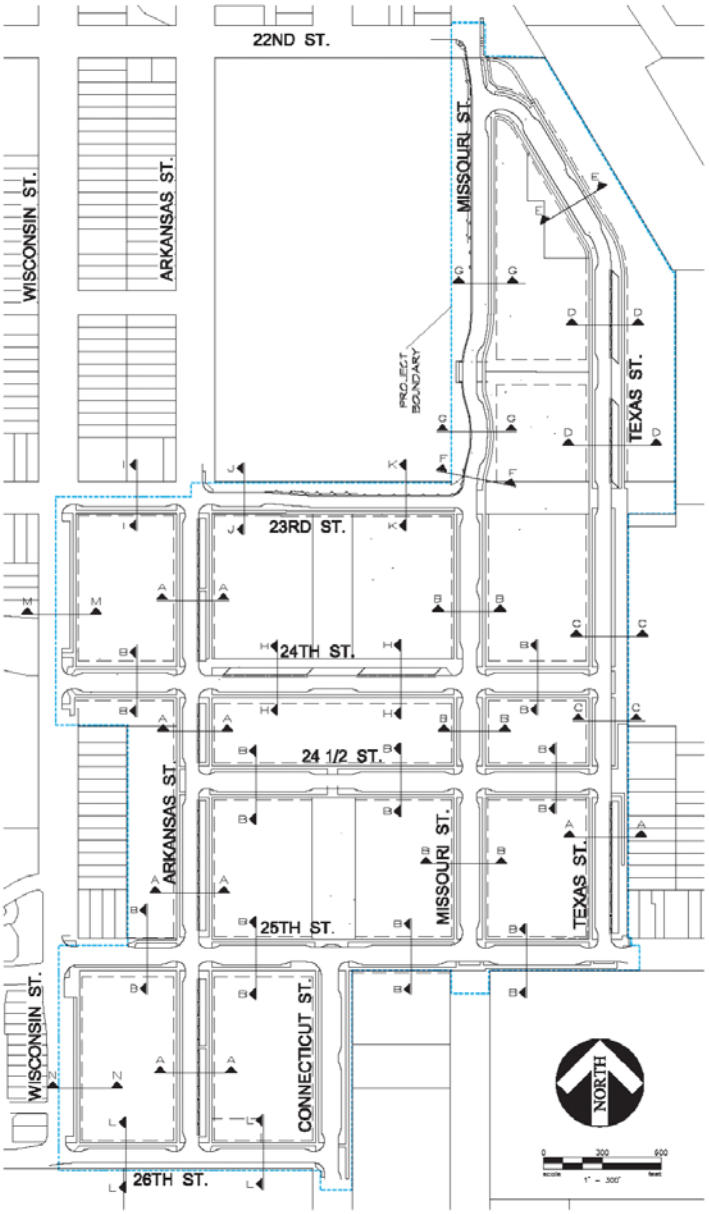


Figure 6.3 Plan View and Cross Section Locations

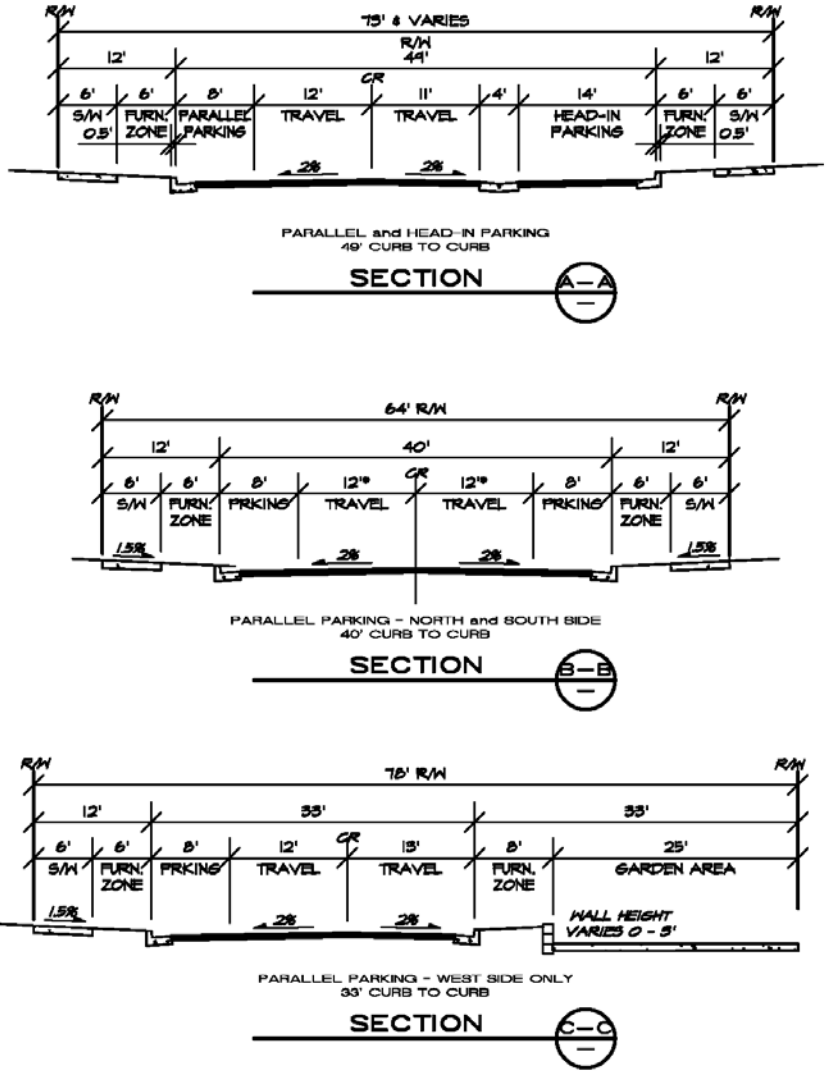


Figure 6.4 –Typical Street Cross Sections A-C

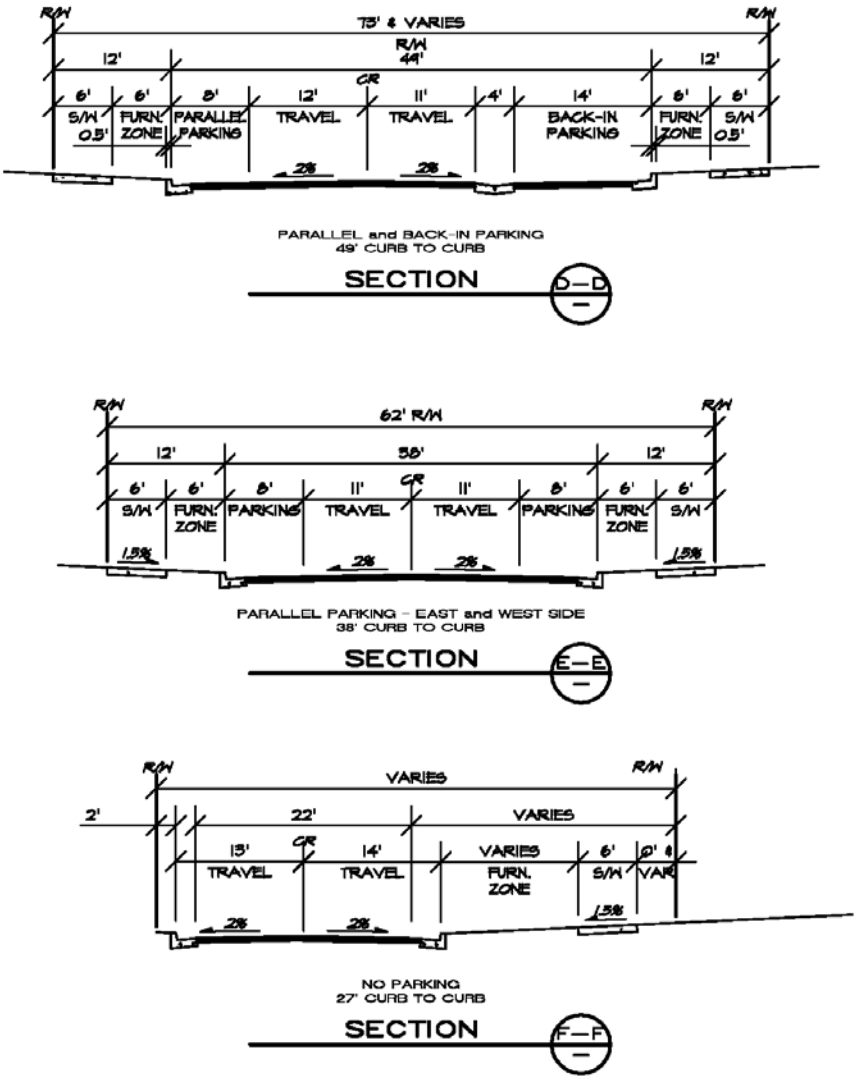


Figure 6.5 –Typical Street Cross Sections D-F

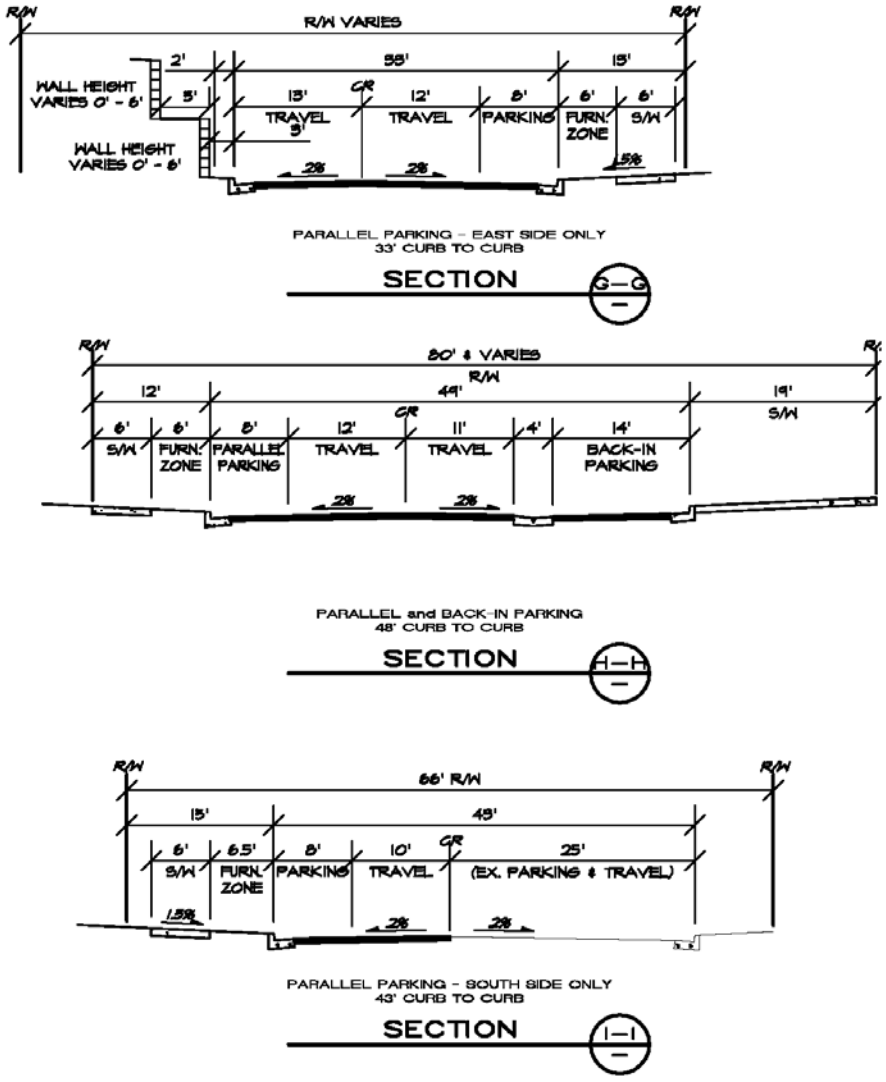


Figure 6.6 –Typical Street Cross Sections G-I

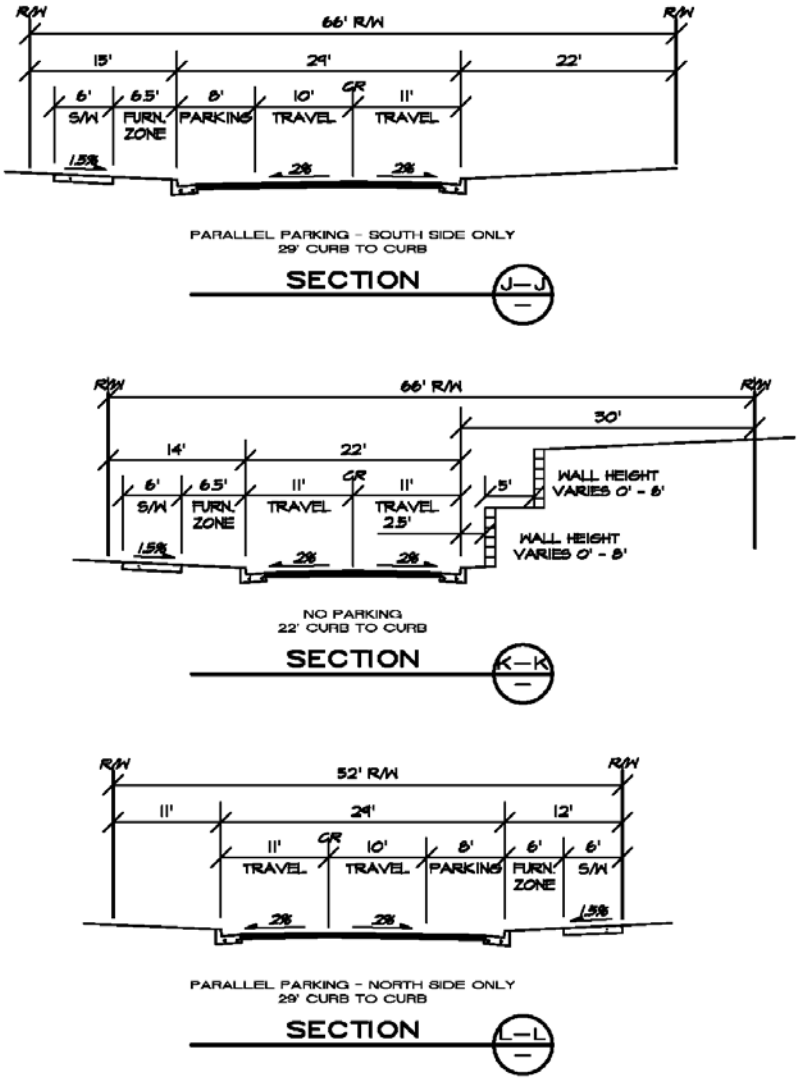


Figure 6.7 –Typical Street Cross Sections J-L

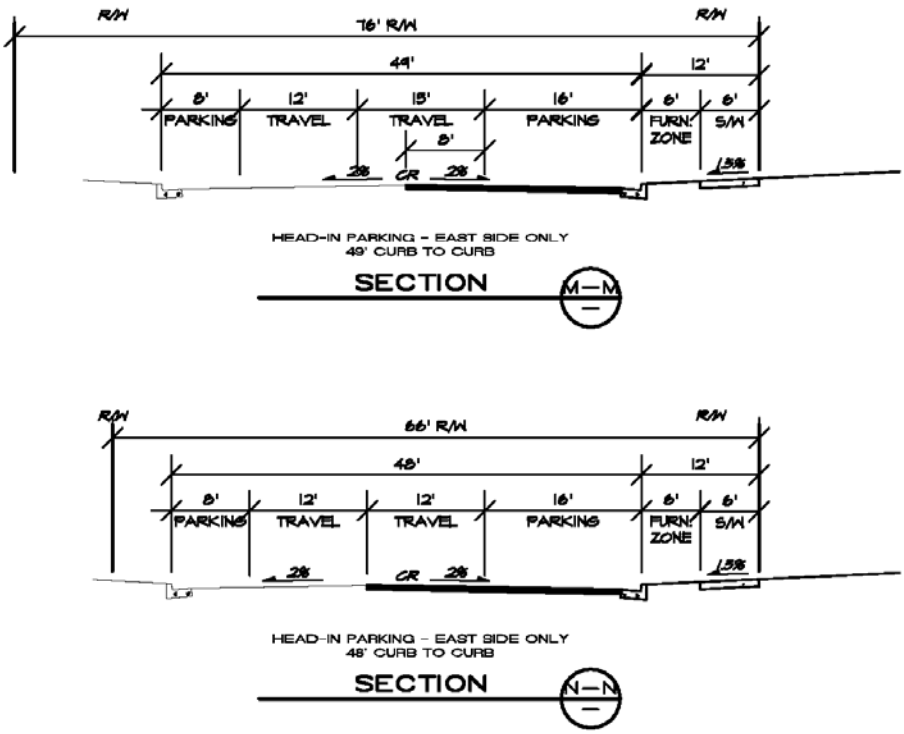
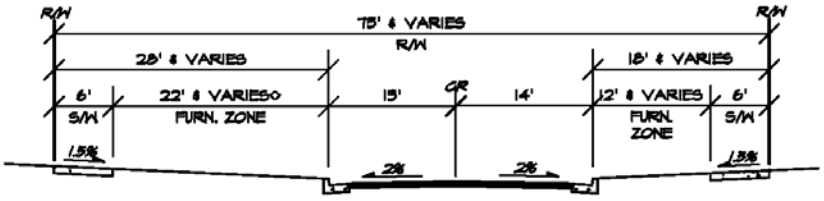
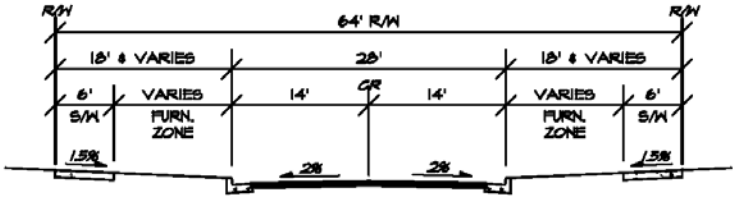


Figure 6.8 –Typical Street Cross Sections M-Blub-outs



26' WIDE NECK DOWN

27' WIDE NECK DOWN CONDITION #1 PER PLAN



28' WIDE NECK DOWN

28' WIDE NECK DOWN CONDITION #2 PER PLAN

Figure 6.9 Typical Bulb-Out Neck Down Condition

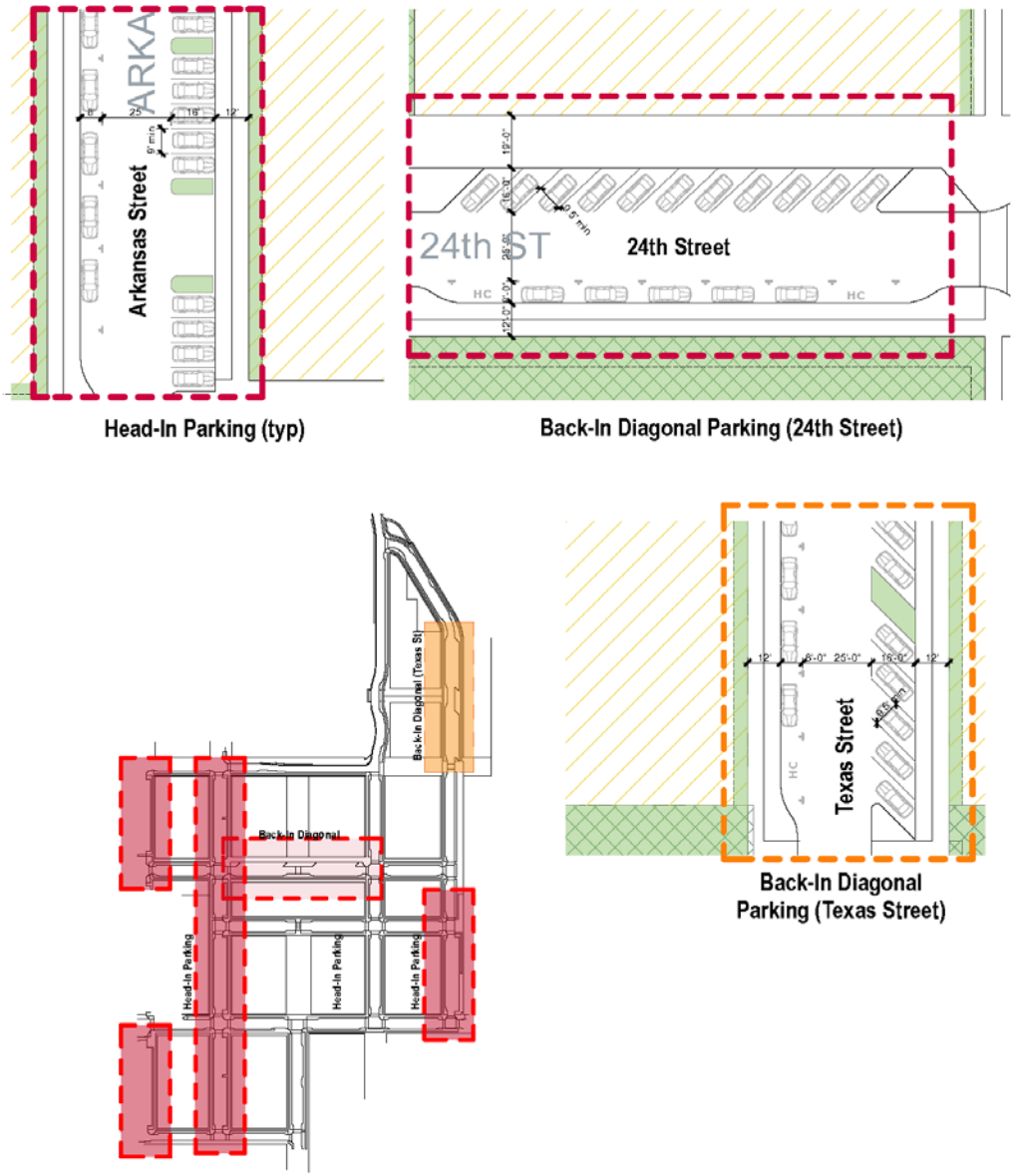


Figure 6.10 Typical Head-In and Back-in Parking Details and Location Map

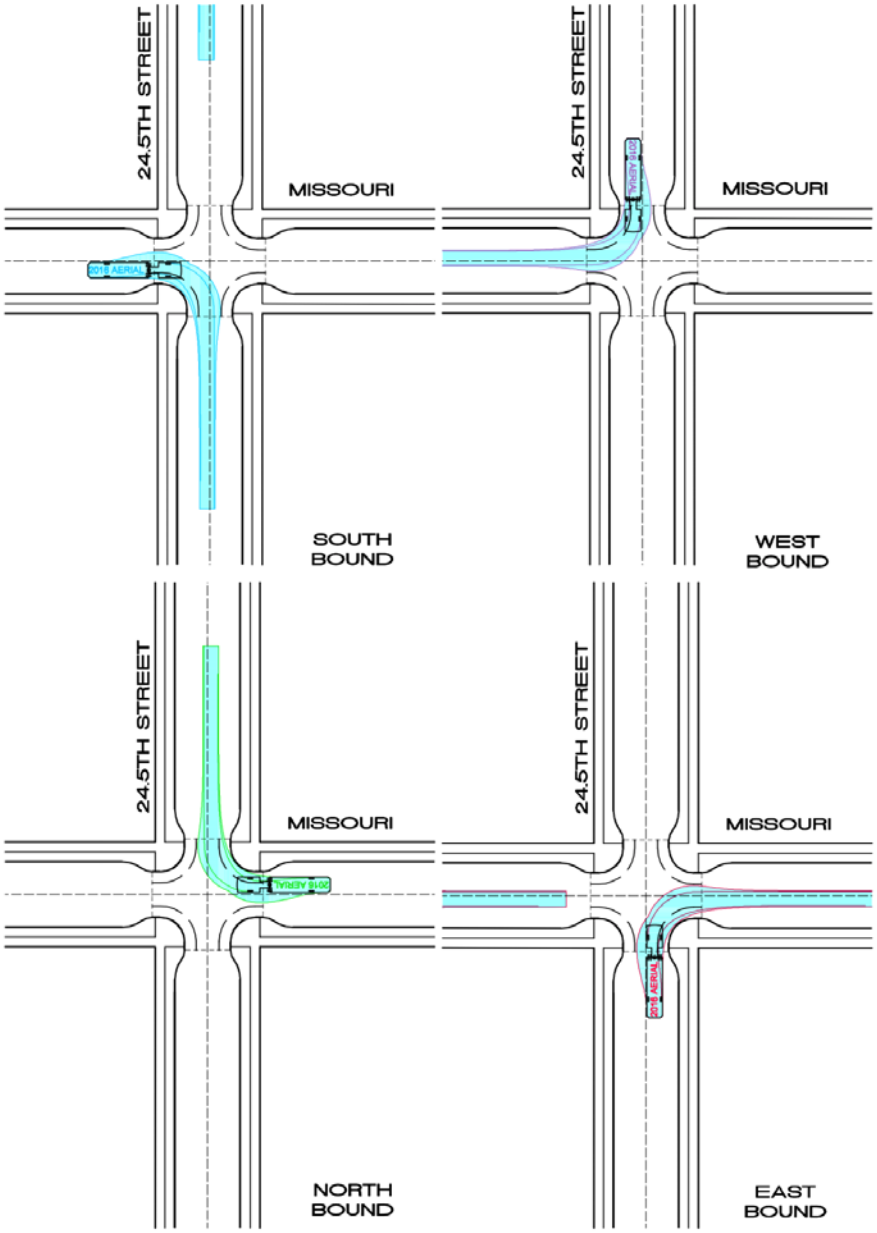


Figure 6.11 Typical Intersection Detail with Fire Truck Turning 2016 Aerial

Turning templates for other intersections provided in the Appendix A

7. OPEN SPACE AND PARKS

7.1 Proposed Parks and Open Spaces

The open space concept builds off of the street network, urban design and circulation concepts to locate a variety of open space types throughout the project site and create new connections to the existing open spaces in the neighborhood. The location of each park, conceptual design, and detailed descriptions are provided in the *Potrero Hope SF Design Standards and Guidelines*.

Safe, active and inviting public spaces are key to the success of a new neighborhood. The new parks are designed and developed as part of the existing open space network, including Starr King Open Space and Potrero Hill Recreation Center. These new and existing open spaces will be connected by tree lined streets and generous landscape stairs, which in turn link to private stoops, porches, entry courts and courtyards. Together these landscape and streetscape elements constitute a central cross of open spaces along 24th and Connecticut Street that connect the project area to the surrounding neighborhoods.

Smaller parks are located at the intersection of Arkansas and 26th Streets and at the confluence of Texas and Missouri Streets. Additional open spaces are created with generous pedestrian connections throughout the site. Stairs along Connecticut and 23rd Street provide unique open spaces with grand views to the south and east. The cliff edges along 25th and 26th street provide a green edge to the south with small gathering areas to rest and enjoy the view. Along Texas Street, a community garden will be located on the east side of the street that will include a bbq and picnic area across from the 23rd Street Stair.

These park and infrastructure improvements, including stormwater collection facilities, stormwater controls, irrigation systems, and fire hydrants, will be designed and installed per City standards by the Developer. Playground and park designs shall be reviewed and approved by SFDPW prior to permit issuance and shall be inspected for compliance with the approved plans prior to being sanctioned for use.

In addition to the above parks and open spaces, the BRIDGE team intends to work collaboratively with the SFDPW to coordinate improvement plans along the 22nd Street ROW between Missouri and Arkansas Street. This connection is a key connection that provides access to the Potrero Rec Center and connects residents to the west to the 22nd Street Caltrain stop, 3rd Street MUNI and the Dogpatch. The current ROW has an unsafe and degrading path that should be updated with a safer stair. It is anticipated that the cost of the design, installation, and maintenance of any improvements would be the responsibility of SFDPW.

Figure 7.1 Open Space, Parks and Stairs Diagram
(mini park may be located at illustrated location or on 26th)

8. Water Systems

8.1 Existing Low Pressure Water System

The existing low-pressure water system surrounds and crosses the site in all of the existing streets, with major lines in 26th and Wisconsin Streets.

8.2 Proposed Low Pressure Water System

Water service will be provided by a water supply, storage, and distribution system operated by the SFPUC. The system will be used for domestic water supply and low-pressure fire hydrants.

8.2.1 Project Water Demands

. Without knowing the size and construction type, the fire flow number assumes a worst case of 8000 gpm, but with 50% reduction for sprinklered buildings per the Fire Code. The irrigation demand assumes that the annual demand will occur in a 5-month period with all of the watering occurring in a 3 hour window. A Potable Water Master Plan that outlines the Project's methods used for calculating the flow demands will be submitted to the SFPUC for review and approval in accordance with Sec. 13 Utility Master Plans.

8.2.2 Project Water Supply

As included in the project EIR, the SFPUC has determined that there are adequate water supplies to meet the Project's water demands through 2035. The SFPUC passed Resolution 13-0110 approving the Water Supply Assessment for the Project on July 9, 2013.

8.2.3 Project Water Distribution System

The low-pressure water system will be designed and constructed by the Developer, then owned by the SFPUC upon construction completion and improvement acceptance by the City. The proposed low-pressure water system is identified schematically on Figure 8.1. This domestic water supply and fire protection system consists of ductile iron pipe mains, low-pressure fire hydrants, valves and fittings, and appurtenances. Final pipe sizes, locations, connections and interconnections, flows, pressures, and location and number of fire hydrants will be determined with an EPANET hydraulic model analysis using appropriate design criteria established by the City. The potable water infrastructure will be located within the public street pavement such that the outside wall of a water is a minimum of 1-foot clear from the lip of gutter and a minimum of 5-feet clear from a proposed tree trunk. The project water system will be modeled by the SFPUC during the Potable Water Master Plan review process to determine on-site system infrastructure requirements. After the Potable Water Master Plan approval process is substantially complete, final water system infrastructure designs for improvements within the new project streets will be submitted to the SFPUC for approval as part of the construction document plan set.

Vertical and horizontal separation distances between adjacent combined sewer system, potable water, and dry utilities will conform to the requirements outlined in Title 22 of the California Code of Regulations and the State of California Department of Health Services Guidance Memorandum 2003-02.

See Typical Street Utility (Figure 8.2) for depth and relationship to other utilities. Required disinfection and connections to new mains will be performed by the SFPUC at Developer's cost.

8.2.4 Proposed Fire Hydrant Locations

As shown on Exhibit 8.3, proposed on-site and off-site fire hydrants have been located at a maximum radial separation of 300 feet between hydrants. In addition, building fire department connections will be located within 100-feet of a fire hydrant. Final hydrant locations are subject to the approval of the SFFD, SFPUC, and will be located outside of the curb returns per DPW Order 175,387. If fire hydrants are required within the curb returns to meet SFFD requirements, the project will work with the SFPUC and SFDPW to request an exception per Sections VI and VII of DPW Order 175,387.

8.3 Off-site Mitigations

Given the increase in project density, the SFPUC will determine the project's impacts to its existing system surrounding the site as part of the Master Utility Plans approval process and confirm the required off-site mitigations to serve the redevelopment project. If off-site improvements are required, The Developer will either design and construct the off-site improvements or pay a fee to the SFPUC to cover the design and construction costs in the future. The off-site improvements will be owned, operated and maintained by the SFPUC after acceptance.

8.4 Phases for Potable Water System Construction

The Developer will design and install the new potable water system in advance of or in phases to match the Phases of the Project, per the Phasing Plan in the DA. The amount of the existing system replaced with each Block may be the minimum necessary to serve the Block. The new Phase will connect to the existing systems as close to the edge of the Phase area as possible while maintaining the integrity of the existing system for the remainder of the development. Repairs and/or replacement of the existing facilities necessary to serve the Phase will be designed and constructed by the Developer. The developer will be responsible for confirming adequate hydraulic capacity to meet fire requirements during phasing.

Master Utility Plans will be submitted to the SFPUC and SFDPW for review and approval as outlined in Section 13.

The SFPUC will be responsible for the new water facilities once construction of the infrastructure is complete and accepted by the City. Impacts to the improvements installed in previous phases caused by the design or construction of the current/new phases will be the responsibility of the Developer and addressed prior to approval of the Street Improvement Plans by the City.

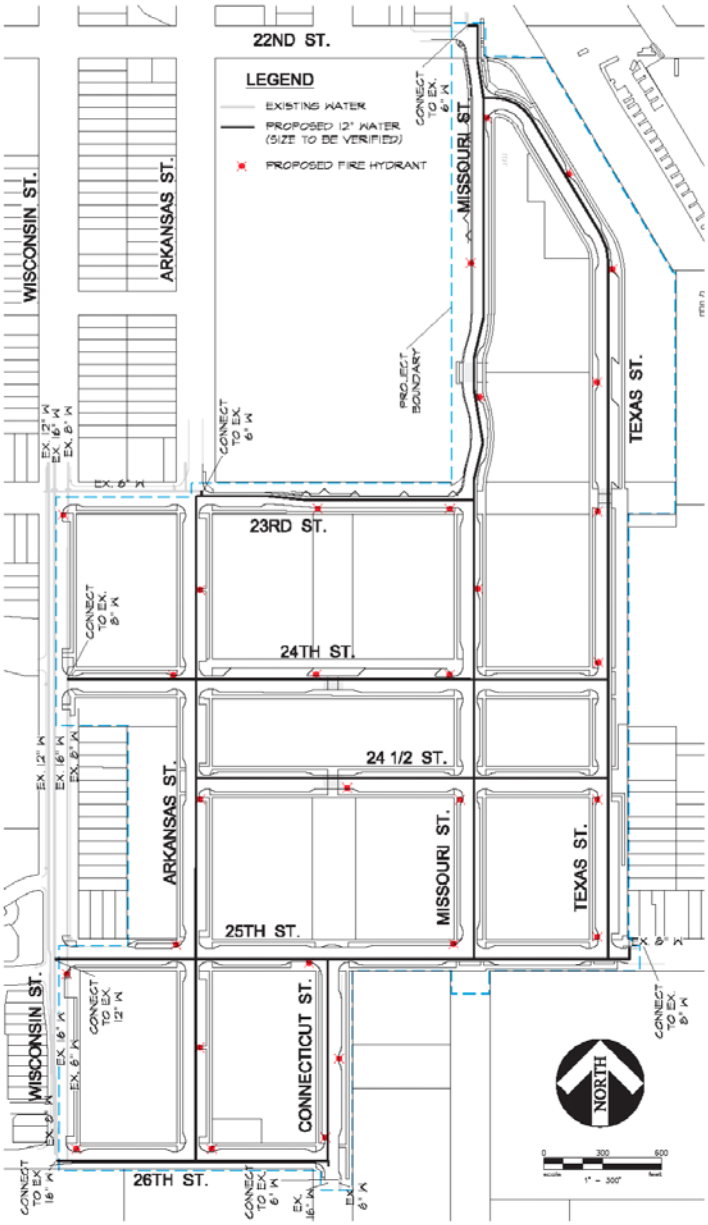


Figure 8.1 Conceptual Potable Water System Map

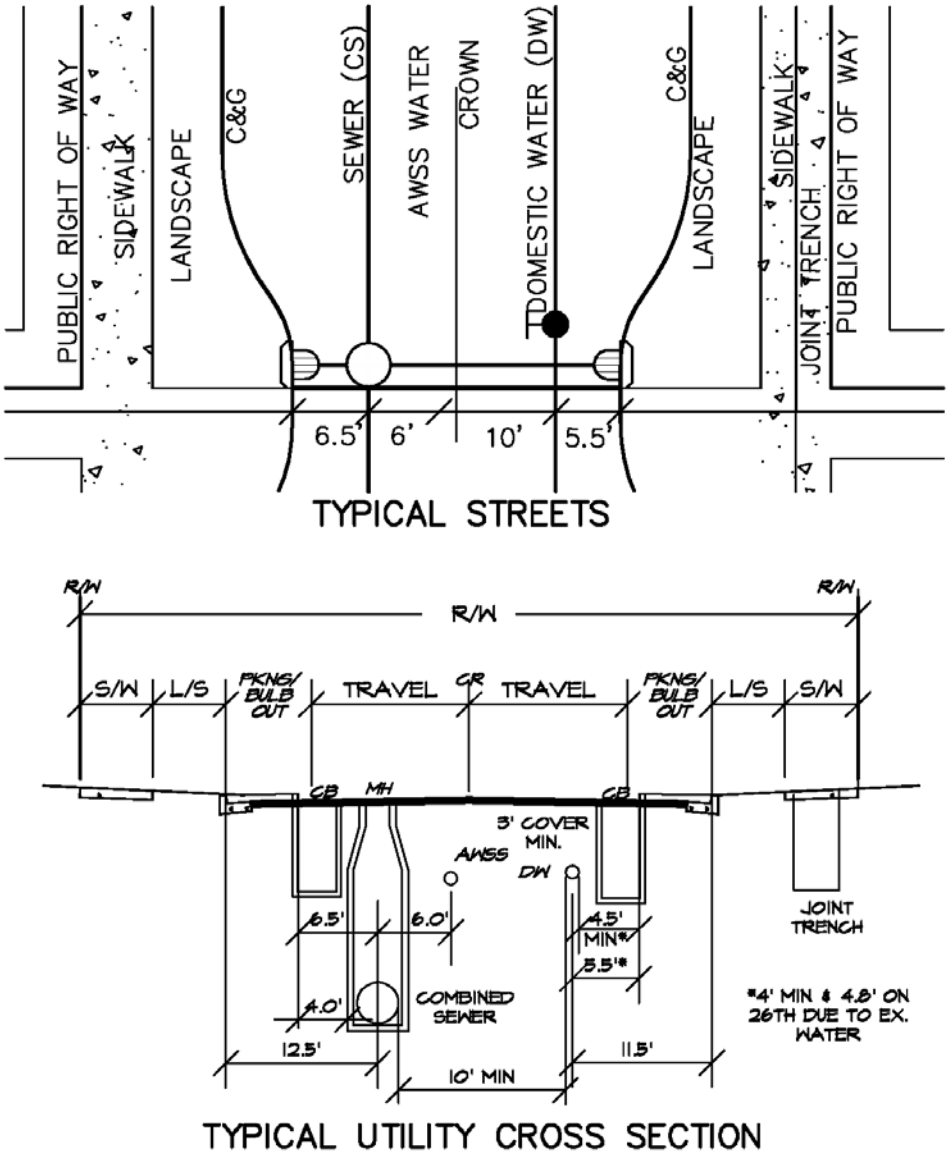


Figure 8.2 Typical Utility Sections within Public Streets

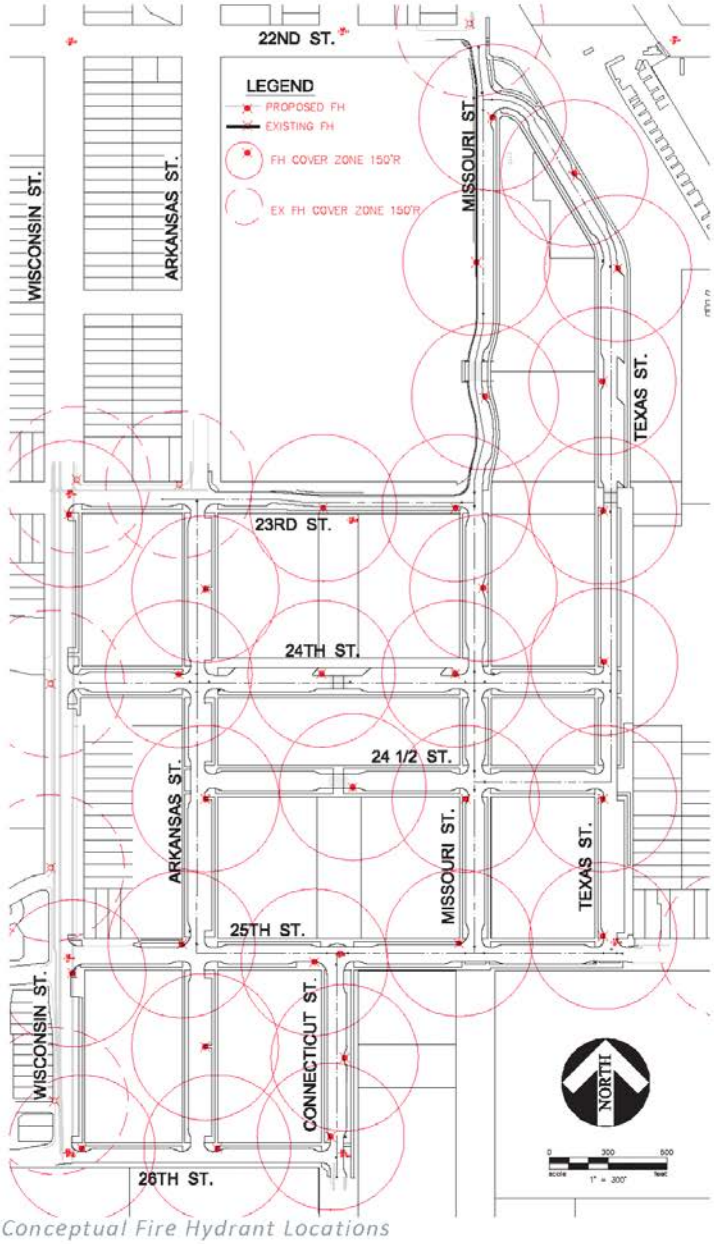


Figure 8.3 Conceptual Fire Hydrant Locations

9. COMBINED SEWER SYSTEM

9.1 Existing Combined Sewer System

The area of Potrero below 23rd street drains in lines ranging from 8" to 15" before exiting the site in an 24"-33"in Connecticut. The existing Potrero Annex area drains in lines range from 12" to 21" before leaving the site to the east in the former 23rd Street right of way. The existing lines are smaller (12") because it is so steep it has enough hydraulic capacity. After exiting the site, the combined sewer ultimately reaches the treatment plant.

9.2 Proposed Combined Sewer System

9.2.1 Proposed Sanitary Sewer Demands

Project sanitary sewer demands conservatively assume a 95% return on water demands resulting in an Average Daily Dry Weather Flow (ADWF) of approximately 247,000 gallons per day (gpd) based on the 260,000 gpd for water in the EIR. A Combined Sewer Master Plan that outlines the Project's methods for calculating the flow demands will be submitted to the SFPUC for review and approval as outlined in Section 13. Applying a peaking factor of 3 to the ADWF, the project is anticipated to generate a Peak Dry Weather Flow (PDWF) of 741,000 gpd. As recommended by the Subdivision Regulations, an Inflow and Infiltration rate (I&I) of 0.003 cubic feet per second (cfs) 1939 gpd) per acre is added to the PDWF to calculate the Peak Wet Weather Flow (PWWF). Including the project I&I of 73,682 gpd, the anticipated PWWF for the project is approximately 814,682 gpd.

9.2.2 Proposed Combined Sewer Capacity

Preliminary hydrology models for the entire site will be developed and provided to the City as part of the Master Utility Plan to confirm the combined sewer system designs and capacity. An analysis of the impacts of the proposed development demands will be reviewed as part of the Combined Sewer Master Plan review and approval process outlined in Section 13.

9.2.3 Proposed Combined Sewer Design Basis

The proposed combined sewer system will be designed in accordance with the San Francisco Subdivision Regulations or SFPUC wastewater utility standards, as appropriate. Piping systems will be designed to convey the 5-year storm event inside the combined sewer infrastructure with overland release of the 100- year 90-minute storm conveyed between the top of curb elevations of the streets. Where sewer ejector pumps, diversion line, or interceptors are incorporated into the private development parcel utility system designs, the sewer demands shall be included in the hydrology calculations for sizing combined sewer mains. If pumps, interceptors or diversion lines are not included, the sewer demands shall not be included in the sizing calculations for the combined sewer mains per the City Subdivision Regulations. Where sewer ejector pumps, diversion line, or interceptors are incorporated into the private development parcel utility system designs they will be owned and maintained by the private parcel owner.

9.2.4 Proposed Combined Sewer Design Criteria

As documented in the Subdivision Regulations or SFPUC wastewater utility standards, as appropriate, proposed 6-inch laterals to 21-inch pipes will be constructed from ASTM C-700 Extra Strength Vitrified Clay Pipe (VCP) with 24-inch to 36-inch pipe constructed from ASTM C-700 Extra Strength VCP. High density polyethylene (HDPE) pipe is anticipated to be an acceptable alternative to VCP, subject to SFPUC approval. HDPE pipe requires a different bedding than VCP, the bedding will also need to be approved by SFPUC. HDPE larger than 12-inch shall be mandrel tested.

Proposed city main sewers within the development will be constructed on approved crush rock bedding. The minimum residential and commercial service lateral size is 6 inches and 8 inches, respectively. Laterals will have an air vent and trap. Manhole covers will be solid with manhole spacing set at a maximum distance of 300 to 350 feet and at changes in size, grade or alignment. Stormwater inlets will be installed per the Subdivision Regulations or SFPUC wastewater utility standards and outside of the curb returns, crosswalks, accessible passenger loading zones and accessible parking spaces, where feasible.

A minimum cover of 6 feet will be provided on top of mains within public streets, unless a reduced cover depth is approved by the Director of Public Works with the consent of the SFPUC. Pipe slopes will be designed between minimum and maximum values and the diameter shall have sufficient capacity to carry the design flow when running half full based on depth (d/D = 0.50). Mains larger than 18 inches shall have sufficient capacity to carry the design flow when running 0.75 full based on depth (d/D = 0.75). Pipes will be sized such that the d/D will be 0.5 for Average Dry Weather Flows and 0.75 for Peak Wet Weather Flows. Freeboard Requirements will conform to the Subdivision Regulations or SFPUC wastewater utility standards. The minimum freeboard requirement should take precedence over the filling ratio (d/D) for design flow conditions. Unless approved otherwise by the SFPUC, the slope of the main sewer will achieve a minimum velocity of 2 ft/sec under average flow conditions. Combined sewer mains will be designed such that the maximum designed sanitary flows are less than 10 ft/sec.

Vertical and horizontal separation distances between adjacent combined sewer system, potable water, and dry utilities will conform to the requirements outlined in Title 22 of the California Code of Regulations and the State of California Department of Health Services Guidance Memorandum 2003-02. Where feasible, the combined sewer will be located in the center of the proposed public streets per Subdivision Regulations. As shown in Figure 8.2 the combined sewer will typically be offset from the center of the street to ensure that adjacent water lines can be placed outside of the proposed bulbouts while maintaining the required health code separation clearances. The combined sewer will be located within the public street pavement such that the outside wall is a minimum of 4-foot clear from the face-of-curb, including bulb-outs and a minimum of 5-feet clear from a proposed tree trunk. The outer edge of combined sewer manholes will a minimum of 4' from face of curb. Final approval of the combined sewer location within the street section and variances is subject to SFPUC approval during the Combined Sewer Master Plan and Project construction document review process.

9.2.5 Proposed Sewer and Combined Sewer Collection System

The proposed replacement combined sewer system is identified schematically on Figure 9.1. Flows from existing combined sewers that serve areas beyond the project boundaries will remain combined as they pass through the project. The combined sewer system will be designed and constructed by the Developer. Street sewers including street drainage within the new public rights-of-way will be reviewed and approved by the SFPUC. The new combined sewer system will be maintained and owned by the SFPUC, upon construction completion and improvement acceptance by the City. The proposed system will include City standard stormwater drainage inlets and sanitary sewer laterals connected by a system of 12-inch to 36-inch gravity combined sewer mains.

The combined sewer system will connect to the existing combined sewer at three locations – Connecticut Street on the south side of the project, 25th Street at the east side of the project and the 23rd Street right of way at the east side of the project. See Figure 8.2 for the approximate combined sewer system depth and its relationship to other adjacent utilities.

9.3 Phases for Combined Sewer System Construction

For each phase, the combined sewer system will be designed for the flows generated by that particular phase, and any existing flows or flows from future phases that will flow through the particular phase. Where construction abuts existing lines that are to remain, a condition assessment will be required for the existing pipes before and after construction of the phase. All sewers, manholes, laterals and catch basins shall require testing and videoing prior to date completion. Videoing shall be in NASSCO PACP format unless otherwise specified by the SFPUC.

A Combined Sewer Master Plan will be submitted to the SFPUC for review and approval as outlined in Section 13.

Upon the Developer offering and the City accepting a newly completed public street, the SFPUC will be responsible for the operation and maintenance of the new combined sewer system in the street.

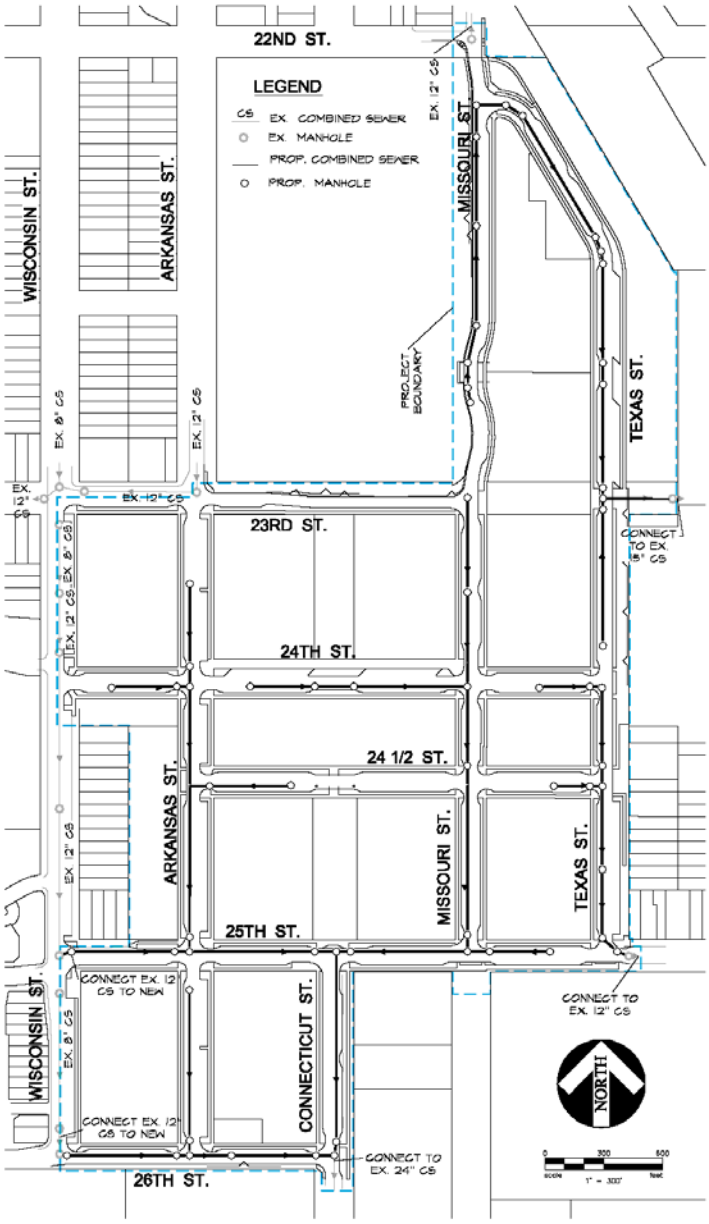


Figure 9.1 Conceptual Combined Sewer System

10. AUXILIARY WATER SUPPLY SYSTEM (AWSS)

10.1 Existing AWSS infrastructure

The San Francisco Public Utilities Commission (SFPUC), in cooperation with the San Francisco Fire Department (SFFD), owns and operates the Auxiliary Water Supply System (AWSS), a high-pressure non-potable water distribution system dedicated to fire suppression that is particularly designed for reliability after a major seismic event. Currently, AWSS infrastructure does not exist within or directly adjacent to the project site.

10.2 AWSS Regulations and Requirements

New developments within the City and County of San Francisco (CCSF) must meet fire suppression objectives that were developed by the SFPUC and SFFD following a major seismic event. The SFPUC and SFFD work with the Developer to determine post-seismic fire suppression requirements during the planning phases of the Project. Requirements will be determined based on increase in building density, fire flow and pressure requirements, Citywide objectives for fire suppression following a seismic event, and proximity of new facilities to existing AWSS facilities. AWSS improvements will be located in public right-of-way or on City property, as approved by SFPUC.

10.3 Conceptual AWSS Infrastructure

To meet the SFPUC and SFFD AWSS requirements, the development may be required to incorporate infrastructure and facilities that may include, but are not limited to:

- Multiple underground water storage cisterns, typically 75,000 gallons each;
- Seismically reliable high-pressure water piping and hydrants with connection to existing AWSS distribution system;
- Independent network of seismically reliable low-pressure piping and hydrants with connection to existing potable water distribution system at location that is determined to be seismically upgraded by SFPUC;
- Portable water supply system (PWSS), including long reaches of hose and equipment mounted on dedicated trailers or trucks.

For the Project, a high-pressure water piping and hydrant system will be designed and installed by the Developer, based on plans approved by the SFPUC. Existing AWSS system in located on Cesar Chavez Street at the bottom of Connecticut and on Pennsylvania Street at the bottom of 25th Street. Final design of the AWSS solution for the Project Site will be determined by the SFPUC and SFFD.

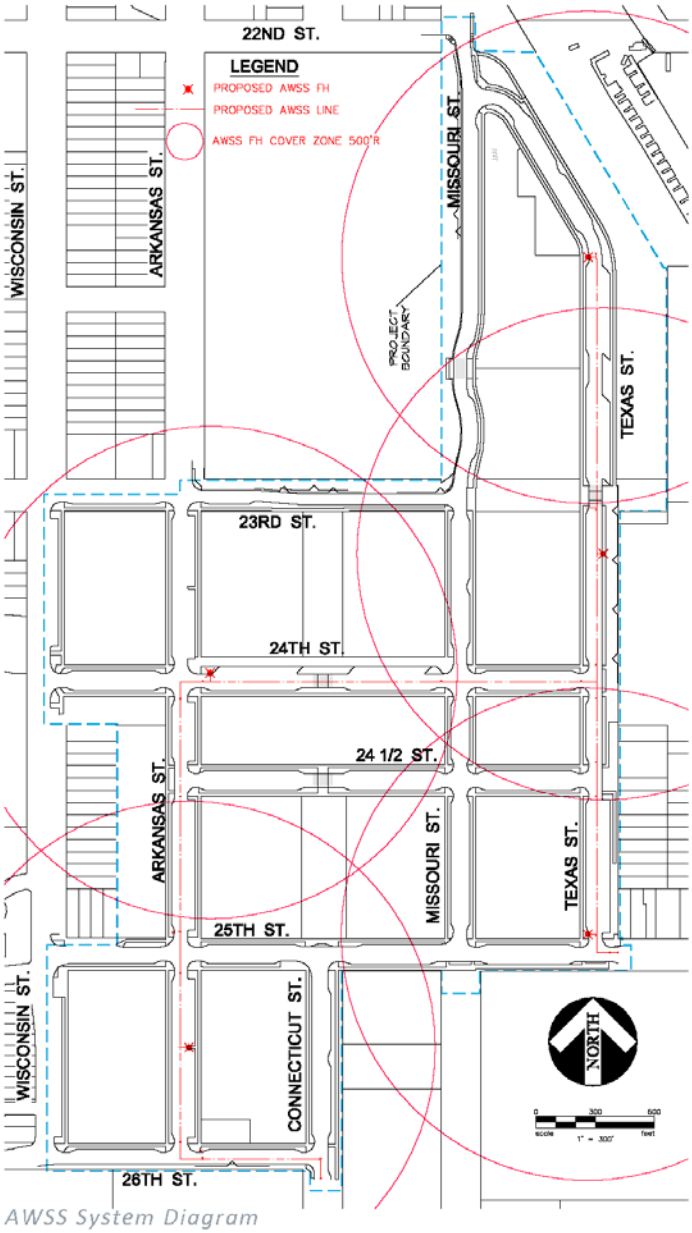


Figure 10.1 AWSS System Diagram

11. Storm Water Management

11.1 Existing Stormwater Management System

The existing Potrero Terrace and Annex is approximately 50% impervious due to the existing streets, buildings and walkways. Stormwater is collected throughout the site and ultimately the combined sewer leaves the site at 3 locations – Connecticut Street, 25th Street to the east, and the easement for the former 23rd Street right of way. The existing site did not include any stormwater controls to reduce runoff volumes.

11.2 Proposed Stormwater Management System

11.2.1 San Francisco Stormwater Management Requirements

The SFPUC Stormwater Management Requirements document is the regulatory guidance describing requirements for post-construction stormwater management. The SFPUC Stormwater Management Requirements requires a project to implement a stormwater management plan that prevents the post-development discharge rate and quantity from exceeding the pre-development condition, when the existing site surface is 50% or less impervious. For projects where more than 50% of the existing site surface is impervious, the project is required to implement a stormwater management plan that results in a 25 percent decrease in the total volume and peak flow of stormwater runoff from the 2-year 24-hour design storm.

11.2.2 Baseline Assumptions and Proposed Site Methodology

Per a determination by SFPUC, the development will use design criteria for stormwater management performance based on the existing site conditions for 50% impervious surfaces for the entire project area, which means that it will maintain the pre-development conditions for discharge rate and quantity. This design criterion will be consistently applied for the overall development and then be applied on a block-by-block basis, with each block also responsible for the area of the half-width or whole-width of the public ROW that is adjacent to it. Each block will install, own, and maintain stormwater controls to meet the overall stormwater performance requirement for the block area and associated adjacent public ROW. See Figure 11.1 for the proposed block-by-block stormwater management area obligations. Any BMP developed within and for each phased Block will be maintained by the developer, or their assigns, via the requirements of the Stormwater Management Ordinance.

Any stormwater controls proposed to manage public right of way stormwater runoff must be reviewed and approved by SFPW and SFPUC in the Stormwater Management Master Utility Plan (MUP). Preliminary conceptual design indicates that stormwater controls may not be feasible in the roadway portion public right of way. It will be the responsibility of the developer of each block to determine if the proposed stormwater controls within the public right of way are feasible where proposed in the Stormwater MUP. Any stormwater controls proposed to manage parcel stormwater within common areas between development blocks (e.g., such as the Connecticut and 23rd Street stairways) must be reviewed and approved by SFPW and SFPUC in the Stormwater Management MUP. Maintenance of the common area stormwater controls will be shared by the blocks adjacent to the common areas.

11.3 Stormwater Control Plans

Due to the block-by-block approach to stormwater management compliance, the developer of each block will be required to prepare and implement a Stormwater Control Plan (SCP) for the block which shall include on-site stormwater controls sized to manage the block itself and any associated adjacent ROW or common area, as delineated on Figure 11.1, Conceptual Stormwater Master Management Plan.

All block SCP's must provide a copy of the Stormwater Management Master Utilities Plan with the actual delineation of the associated block. Any changes to Figure 11.1 must be tracked by the developer to ensure all public ROW areas have been managed at build-out. Where stormwater controls within the public ROW are approved in the Stormwater MUPs, the developer will be required to prepare and implement a separate SCP per the phased street improvement plans (SIPs) that includes any adjacent public ROW stormwater controls. The Final SCP for any proposed public ROW stormwater controls must be reviewed and approved by SFPUC prior to issuance of the associated Street Improvement Permit.

Each SCP will be prepared in compliance with SFPUC Stormwater Management Requirements and the approved Potrero Stormwater Management Master Utilities Plan. The selected modeling methodology for the phased SIPs will be per the SFPUC Accepted Hydrologic calculation methods. The Stormwater Management Master Utilities Plan for the public improvements will be submitted for review and approval as outlined in Section 13. Any stormwater controls installed within the public ROW must be constructed per an SFPUC reviewed and approved Stormwater Management Phasing and Sequencing Plan.

11.4 Phases for Stormwater System Construction

The Developer will design and install the new stormwater controls with the design and construction of each block of the project. Permanent stormwater controls shall be installed to comply with the SFPUC Stormwater Management Requirements at the completion of each block and/or phase of the Project.

At all phases of the development, the Developer must provide functioning and adequate stormwater controls in compliance with the SFPUC's post-construction Stormwater Management Requirements. The Developer must complete the construction of the stormwater controls and record the stormwater maintenance agreement prior to issuance of the Certificate of Final Completion. If a future park will include stormwater controls necessary for a particular phase of development or future parcel to meet the Stormwater Management Requirements of that development, the Developer must complete the construction of the stormwater controls and record the stormwater maintenance agreement prior to issuance of the Certificate of Final Completion. Centralized stormwater controls necessary to achieve stormwater management compliance within a development phase(s) will be constructed and operational prior to completion of that phase(s).

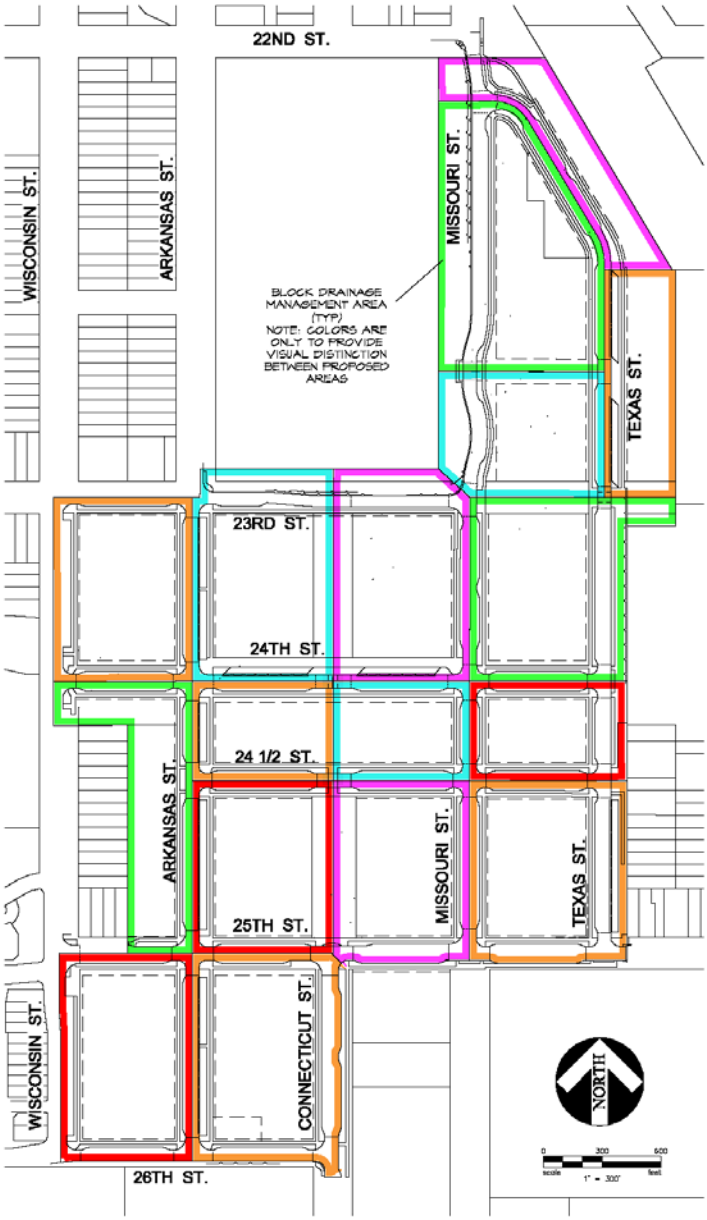


Figure 11.1 Conceptual Stormwater Master Management Plan

12. Dry Utilities

12.1 Existing Electrical, Gas, and Communication Systems

On Wisconsin, Missouri, Texas, 23rd, 25th, and 26th Streets adjacent to the Project site, there are existing electrical, gas, and communication systems. Most of the electrical and communication lines are overhead on these streets.

12.2 Project Power Providers and Requirements

Chapter 99 of the City of San Francisco Administrative Code requires the City to consider the feasibility of supplying electricity to new development projects. SFPUC has determined that they will provide electric service for the project. The City has stated its intent to provide electric service to the Project on terms and conditions generally comparable to, or better than, the electric service otherwise available from PG&E.

12.3 Proposed Joint Trench

The proposed Joint Trench is identified schematically on Figure 12.1. Work necessary to provide the joint trench for dry utilities, typically installed within in public rights-of-way, consists of trench excavation and installation of conduit ducts for electrical, gas, and communication lines. Gas mains must be 10-ft. clear from building foundations. Additionally, utility vaults, splice boxes, street lights and bases, wire and transformer allowance, and backfill are included. Electric and power systems will be constructed per the applicable standards of the agency or company with controlling ownership of said facilities with street lighting infrastructure constructed per City standards. The utility owner/franchisee (such as SFPUC, PG&E, AT&T, Comcast and/or other communication companies) will be responsible for installing facilities such as transformers and wire. All necessary and properly authorized public utility improvements for which franchises are authorized by the City shall be designed and installed in the public right-of way in accordance with permits approved by SFDPW. Joint trenches or utility corridors will be utilized wherever allowed. The location and design of joint trenches or utility corridors in the right-of way must be approved by SFDPW during the street improvement plan process. The precise location of the joint trench in the public right-of-way will be determined prior to recording the applicable Final Map and identified in the project construction documents. Nothing in this Infrastructure Plan shall be deemed to preclude the Developer from seeking reimbursement for or causing others to obtain consent for the utilization of such joint trench facilities where such reimbursement or consent requirement is otherwise permitted by law.

12.4 Phases for Dry Utility Systems Construction

The Developer will design and install the new joint trench systems in phases to match the Phases of the project. The amount of the existing system replaced with each Phase will be the minimum necessary to serve the Phases. The Phase will connect to the existing systems as close to the edge of the new Phase as possible while maintaining the integrity of the existing system. Repairs and/or replacement of the existing facilities necessary to serve the Phase will be designed and constructed by the Developer.

The service providers will be responsible for maintenance of existing facilities until replaced by the Developer and will be responsible for the facilities once the Phase or facility is complete and accepted by the utility provider.

Impacts to improvements installed with previous phases of development due to the designs of the new phase will be the responsibility of the Developer and addressed prior to approval of the construction drawings for the new phase.

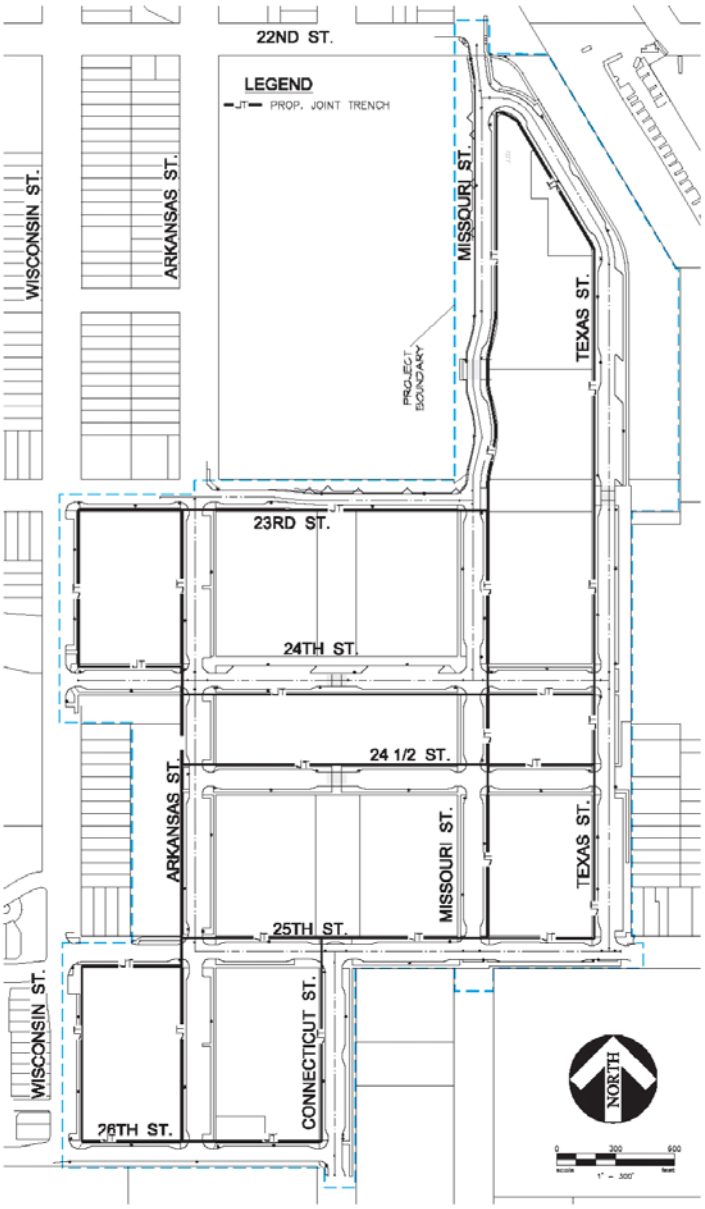


Figure 12.1 Conceptual Joint Trench Plan

13. FUTURE DOCUMENTATION SUBMITTAL REQUIREMENTS

Following City approval of this Master Infrastructure Plan (MIP), the Developer shall submit the following subsequent infrastructure related design documents to the City for review and approval to ensure that all proposed infrastructure improvements, including public water, wastewater, stormwater management, dry utilities (including SFPUC power) and public right-of-way improvements meet all requirements and standards of the City.

13.1 Outline of Submittals

Master Infrastructure Plan (MIP)

The MIP is an exhibit to the Development Agreement (DA). The MIP outlines the infrastructure responsibilities of the City and the Developer and defines the site and infrastructure improvements required to construct the project.

Master Plans

Supplemental to the Master Infrastructure Plan, the developer shall submit a set of Master Plans to the City for approval.

The Master Utility Plans will include the following:

- Electrical Master Utility Plan
- Low Pressure Water System Master Plan
- Combined Sewer Master Plan
- Stormwater Management Master Utilities Plan
- Grading and Overland Release Master Plan

Other Master Plans:

- Master Streetscape Plan
- Street/Grading Master Phasing Plan

Development Phase Design Review Application

The Phase Application is intended to ensure that all buildings within a phase as well as new infrastructure, utilities, open space and all other improvements promote the purpose of the HOPE SF Program, Special Use District and meet the requirements of the Design Standards and Guidelines (DSG) and MIP documents.

Street Improvement Plans

Street improvement plans will be submitted for each phase in the form of Construction Documents. Document sets will be submitted at 30%, 60%, 95% and 100%.

13.2 Master Utility Plans (MUPs)

Following approval of the Master Infrastructure Plan, but prior to the submittal of 60% construction documents for Phase 1 (Block X and adjacent segments of 25th and Connecticut streets), the Developer shall submit draft Master Utility Plans to the City (with the exception of the Electrical Master Utility Plan which will be submitted prior to the 30% construction documents of Phase 2). All Master Utility Plans must be approved by the SFPUC prior to review of the 30% construction documents for Phase 2. The SFPUC will handle review and approval, as outlined below, that cover site wide infrastructure issues that were not detailed in the Master Infrastructure Plan. The Master Utility Plans shall generally include:

13.2.1 Electrical Master Utility Plan

This master utility plan shall be submitted as described in the SFPUC's Rules & Regulations Governing Electrical Service, Appendix II. The study shall contain the following information:

- Single line diagrams, and a site-wide exhibit showing general routing of distribution cables and key facilities such as switches and switchgear, for an electrical system that is consistent with any approved development plan.
- A phasing plan identifying major development milestones sequencing with estimated time schedules.
- Existing site maps, proposed land use plans, estimated number of proposed units and configuration, gross unit area, projected demand and annual energy loan estimates for at least five years. (Please refer to the SFPUC's Rules & Regulations Governing Electrical Service found online at http://sfwater.org/index.aspx?page=172)
- Typical joint trench configuration
- Written description and figures showing any proposed underground dry utility-related structures in the public ROW.
- Description and figures showing any proposed easements for future dry utility facilities.
- Updated description and figures showing any revised project phasing.

Additionally, this MUP shall include streetlighting:

  - Proposed streetlight locations
  - Proposed fixture type(s)
  - Classification information for each street (or street segment, as applicable)
  - Streetlight design criteria/relevant regulations

Infrastructure improvement plans for streetlights must include photometric calculations and specifications.

13.2.2 Low Pressure Water System Master Plan

The descriptions shall include the following:

- In the event that hydraulic modeling is necessary to confirm that the City system can accommodate flows from the Project, those studies will be conducted by the City as a reimbursable City cost.

- Written description and figures showing the proposed gravity pipe and force main layout, sizes, materials, depths, velocities and slopes.
- Written description and figures showing all proposed pump stations or non-pipe facilities proposed as part of the project.
- Figures showing all proposed points of connection with existing SFPUC-owned sewer infrastructure as appropriate. (City standard connection details to existing infrastructure will be provided with 30% CD's.)
- Figures showing proposed service connections to parcels. (City standard service connection details will be provided with 30% CD's.)
- Written description and figures showing any proposed underground sewer-related structures in the public ROW.
- Description and figures showing any proposed easements for future sewer facilities.
- Updated description and figures showing any revised project phasing.

13.2.3 The Combined Sewer Master Plan

The Master Plan shall include the following:

- A written description and figures demonstrating that a functioning wastewater infrastructure system will be in place at all times and complies with all City laws, codes and regulations at all phases of development up to and including full build out of the Project.
- Stormwater Capacity Analysis for entire development including modeling (SWMM or equivalent) to demonstrate that the Project will provide adequate collection system capacity. The Analysis shall include detailed sanitary sewer and stormwater flows based on anticipated building usage and development plan, analyzing the impact of the project on downstream infrastructure (points of connection to the existing public combined sewer system), localized wet weather flooding; and combined sewer system surcharges into streets at full build out. The analysis shall include a detailed description of all assumptions and calculation methods used, including explanation and reference for selected peaking factors.
- A written description and figures outlining any proposals for variances to the SFPUC standards for the combined sewer location within the street section for review and approval of the SFPUC on a case-by-case basis (such approval will not be granted as part of the MUP approval).
- In the event that hydraulic modeling is necessary to confirm that the City system can accommodate flows from the Project, those studies will be conducted by the City as a reimbursable City cost.
- Written description and figures showing the proposed gravity pipe and force main layout, sizes, materials, depths, velocities and slopes.
- Written description and figures showing all proposed pump stations or non-pipe facilities proposed as part of the project.
- Figures showing all proposed points of connection with existing SFPUC-owned sewer infrastructure as appropriate. (City standard connection details to existing infrastructure will be provided with 30% CD's.)
- Figures showing proposed service connections to parcels. (City standard service connection details will be provided with 30% CD's.)

- Written description and figures showing any proposed underground sewer-related structures in the public ROW.
- Description and figures showing any proposed easements for future sewer facilities.
- Updated description and figures showing any revised project phasing.

13.2.4 Stormwater Management Master Plan

The Master Plan shall include the following:

- Conceptual plans showing the location of any proposed stormwater management control located in the public ROW sidewalk and roadway, shared corridors, or parks. Stormwater management controls located in the public ROW shall be modeled and quantify per SFPUC Accepted Hydrologic Calculation Methods
- Conceptual details showing any proposed stormwater management controls, as appropriate.
- A project wide Maintenance Assessment of the maintenance required for the proposed Stormwater Controls as well as a description of the funding mechanism that will be in place to perform that maintenance.
- Updated description and figures showing any revised project phasing.

13.2.5 Grading and Overland Release Master Plan

The Master Plan shall include the following:

- Written description and figures generally showing the overland flow path for the 100- year storm, outlet locations, and drainage boundaries.
- A hydrologic/hydraulic modeling analysis to demonstrate overland flow will be managed at full project build out as required in applicable codes and regulations. The analysis shall include all proposed surface improvements in the development phase that could impede overland flow paths in the ROW such as raised intersections, curb less street designs, bulb-outs, etc. If site designs cannot meet the SFPUC requirements for overland drainage release, alternative solutions will be developed with the submittal of the 30% Street Improvement Plans for the initial phase of development.
- The preliminary geotechnical investigation will be included as a part of this Master Plan to demonstrate to SFPUC and DPW that the project grading can be mitigated to minimize differential settlement across the project site. As each phase develops, it will be required to prepare a new geotechnical investigation that addresses any specific mitigation measures regarding the soil and foundation improvements that can be implemented based on the proposed phase development.
- Updated description and figures showing any revised project phasing.

13.3 Other Master Plans

Following approval of the Master Infrastructure Plan, but prior to the submittal of 30% construction documents for Phase 2 the following Master Plans shall be submitted to the City for review and approval.

13.3.1 Streets/Grading Phasing Plan

The Streets/Grading Phasing Plan shall include conceptual grading and infrastructure utility maps for each phase showing how the proposed improvements will connect to existing and/or previous phase grades and utilities.

13.3.2 Streetscape Master Plan

The Streetscape Master Plan will summarize streetscape and public-way improvements for the Project. The Master Plan will include conceptual layouts for all street conditions, provide a furniture and material palette, streetlight and furniture locations and conceptual planting plan.

13.4 Street Improvement Plans

Street Improvement Plans shall be submitted to the DPW Infrastructure Task Force for review. Construction Documents will be submitted at 30%, 60%, 95% and 100% completion.

Street Improvement Permit Applications shall include the following:

- Standard specifications for use with all subsequent improvement phases will be submitted with the first phase of development. Subsequent improvement phases will conform to the approved standard specifications subject to future changes allowed by the DA. Phase specific specifications to supplement the standard specifications will be submitted for review and approval, as needed.
- Proof of conformance with infrastructure requirements outlined in the applicable Tentative Map conditions, City regulations, the MIP, and the phase applications.
- Proof of conformance with mitigations identified in the phase application to alleviate impact of the development project on downstream infrastructure, minimize localized flooding, minimize combined sewer system surcharges, and safely manage overland flow.
- Proof of conformance with the stormwater management requirements applicable to the project at the time of submission including:
- Preliminary Stormwater Control Plan at conceptual design first construction document (30% construction documents)
- Final Stormwater Control Plan at detailed design (100% construction documents)
- Proof of conformance with the City's construction site runoff requirements, including a Storm Water Pollution Prevention Plan/Erosion and Sediment Control Plan
- Details of the connection to existing, off-site infrastructure.
- Listing on the plans of how environmental mitigation measures (from the EIR) have been addressed.

APPENDIX

Appendix A – Intersection Turning Radius Compliance

Appendix A illustrates the 2016 Aerial, 2016 Fire Engine and 40' Excelsior Turning Template at all street intersections.

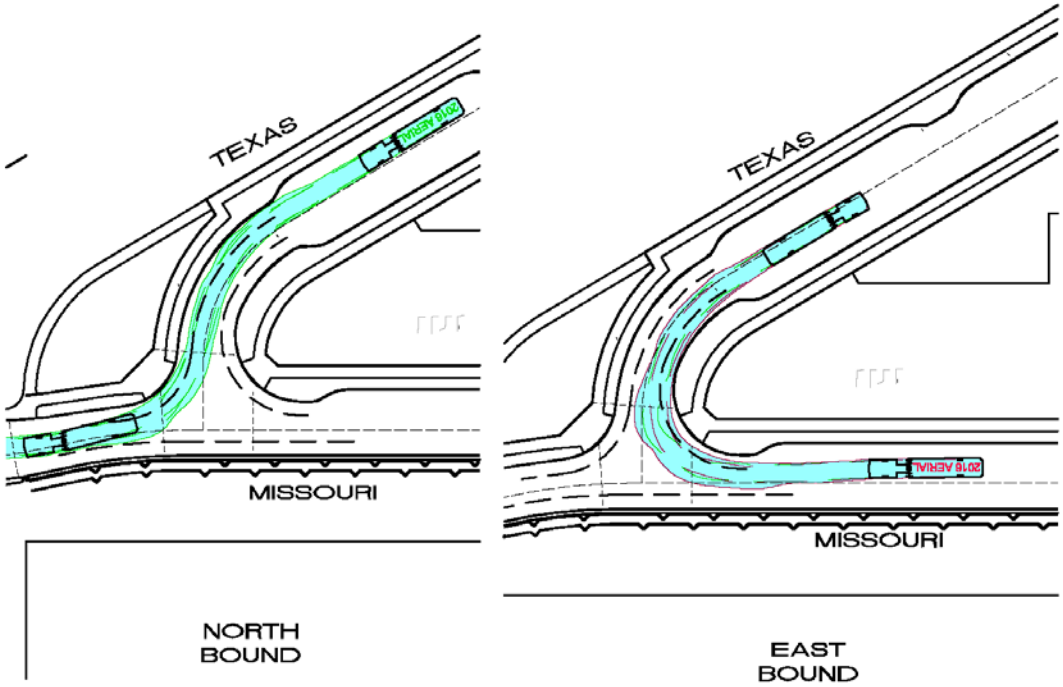
Appendix B – Existing Utilities (Full Size)

Appendix C – Vertical Clearance Diagrams

Appendix D – 11 x 17 Plan Figures

APPENDIX A

TURNING TEMPLATES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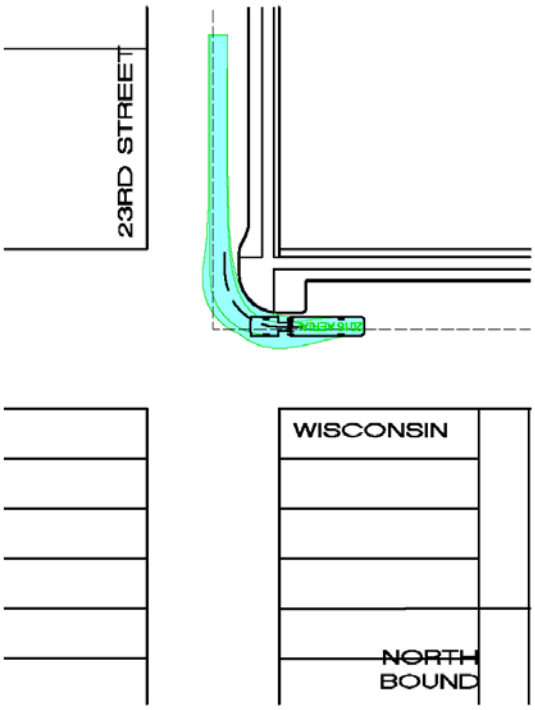
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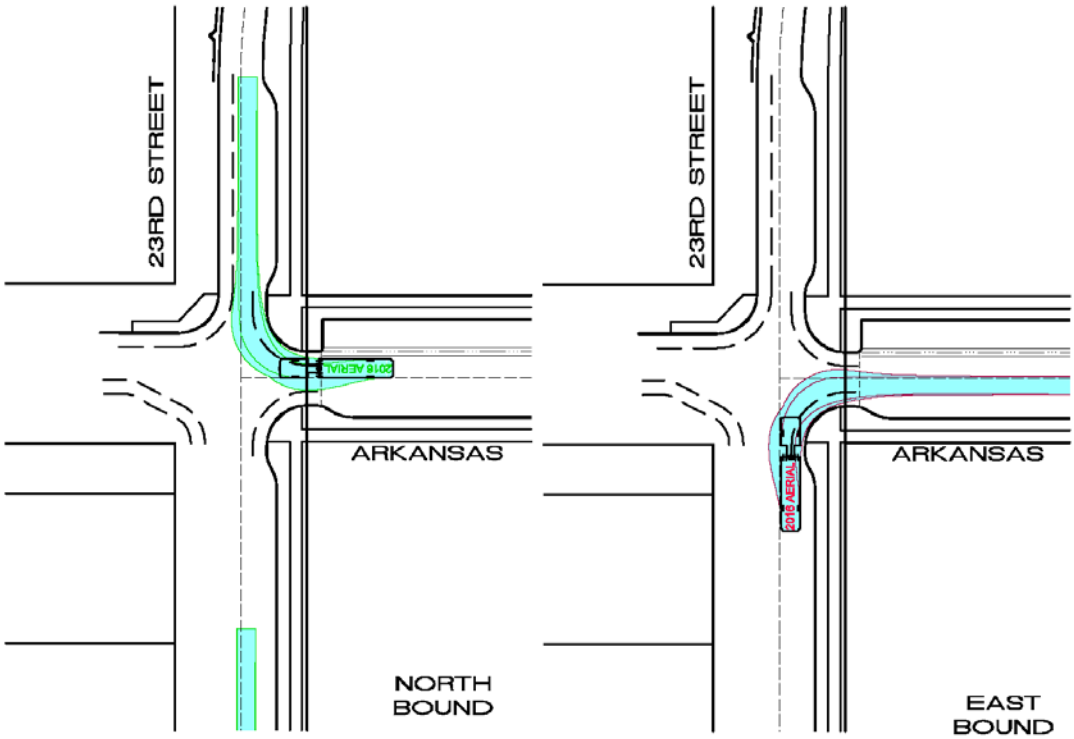

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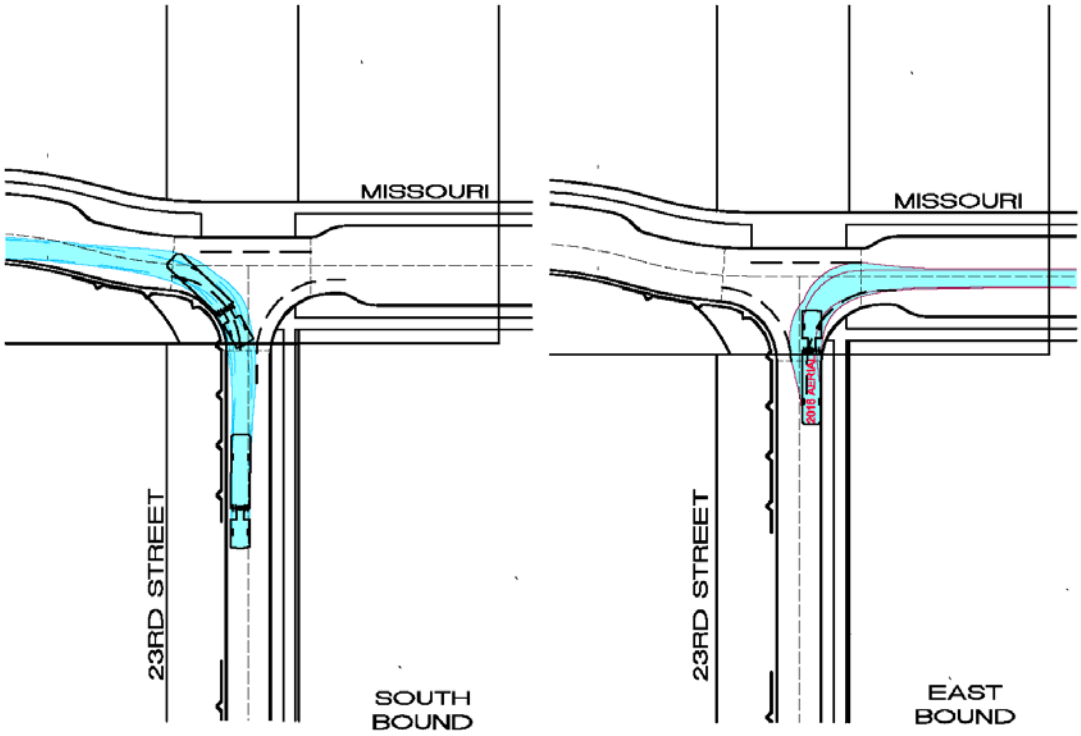
APPENDIX
2016 SFMTA FIRE AERIAL TURN MODELS



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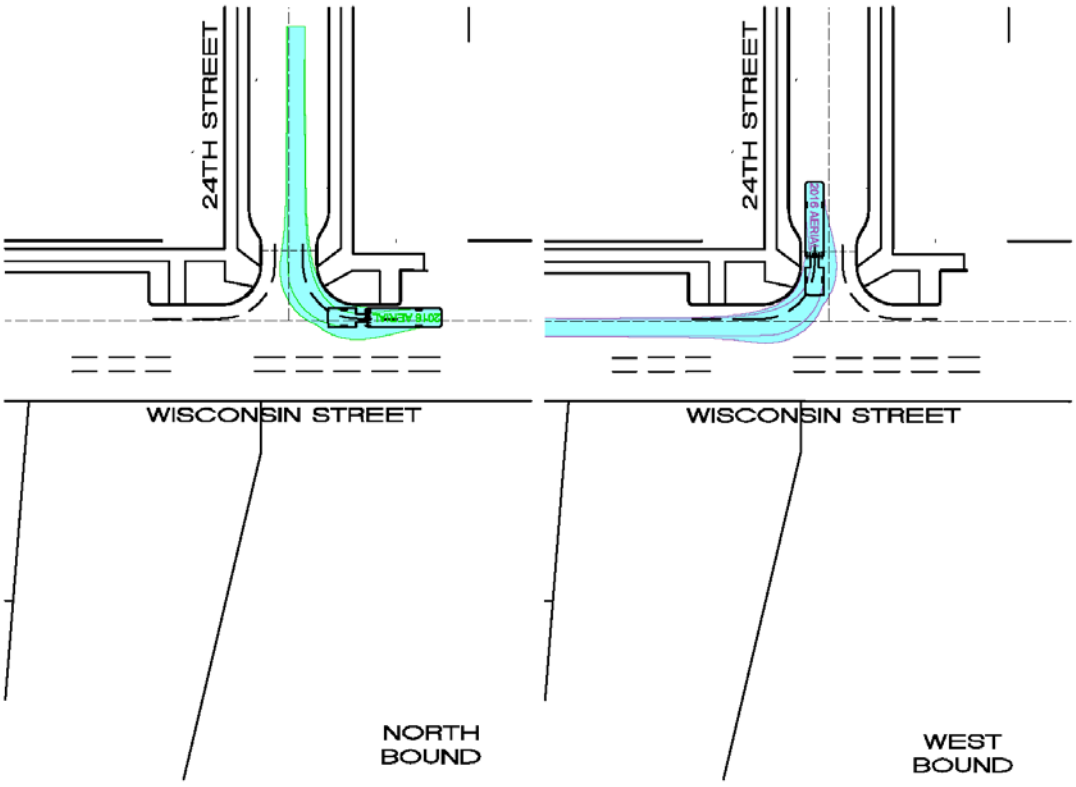

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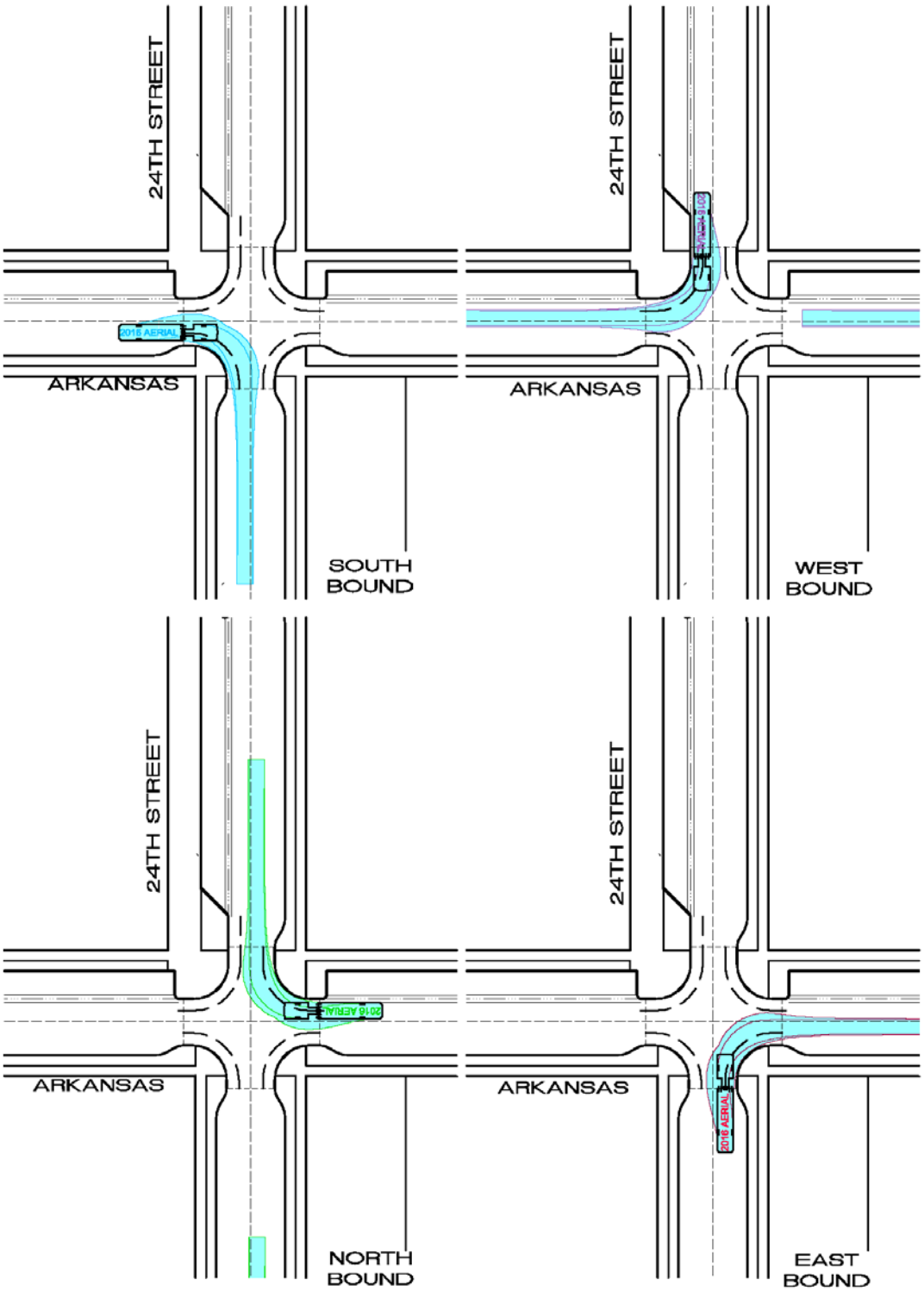

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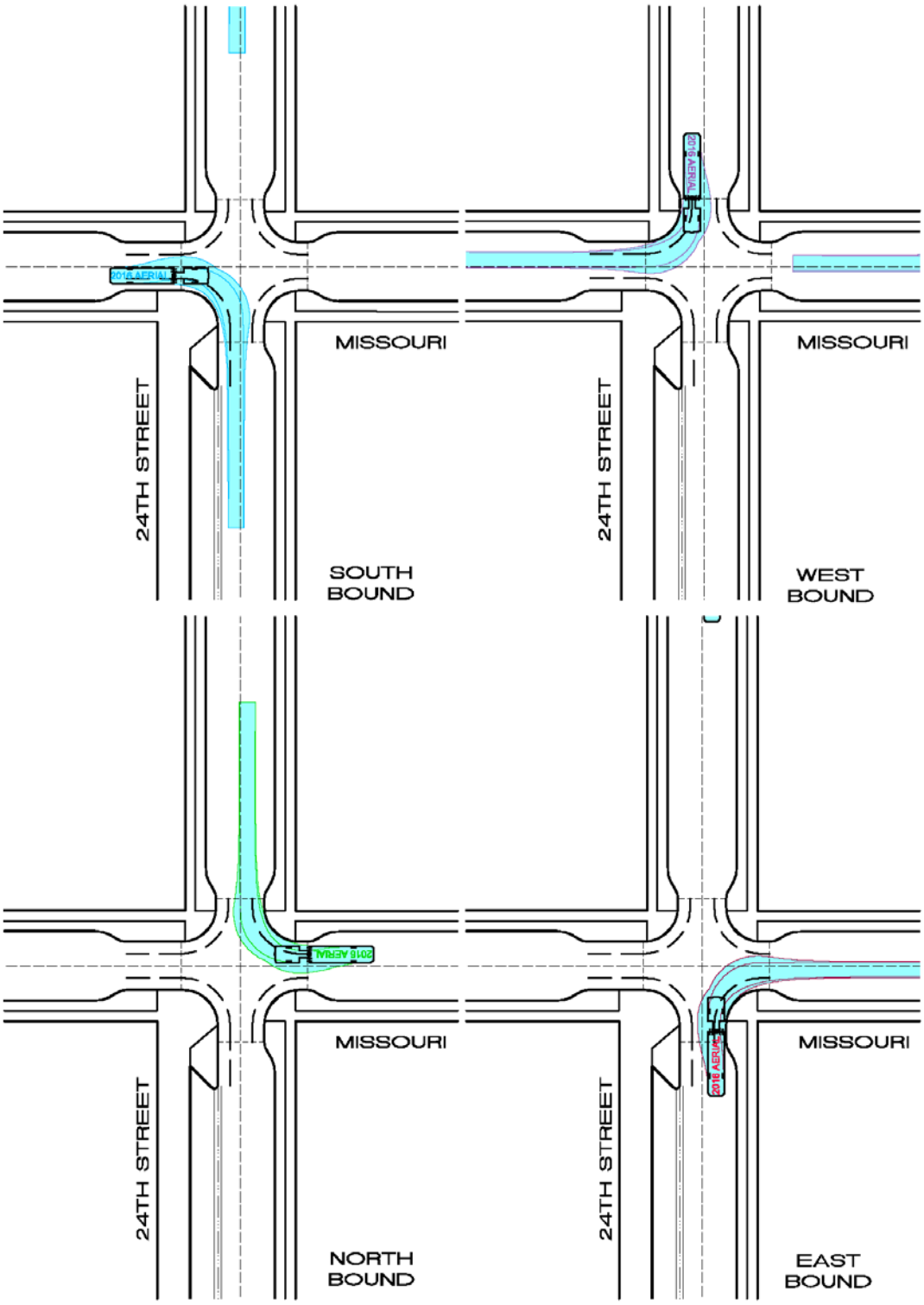

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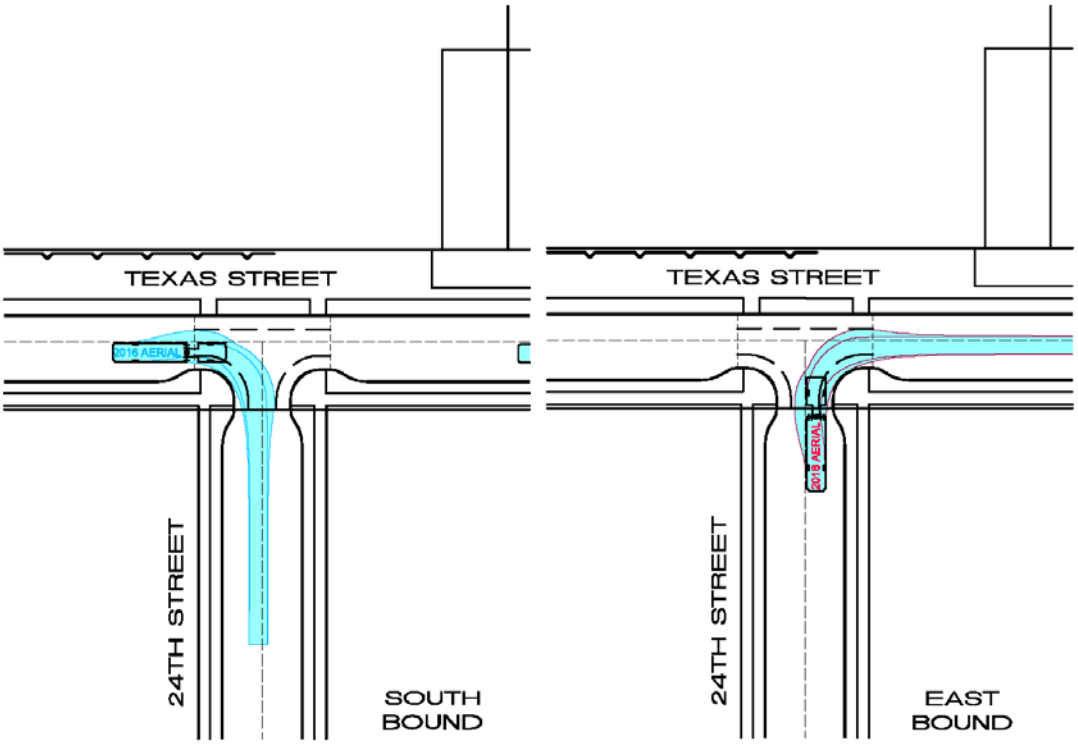

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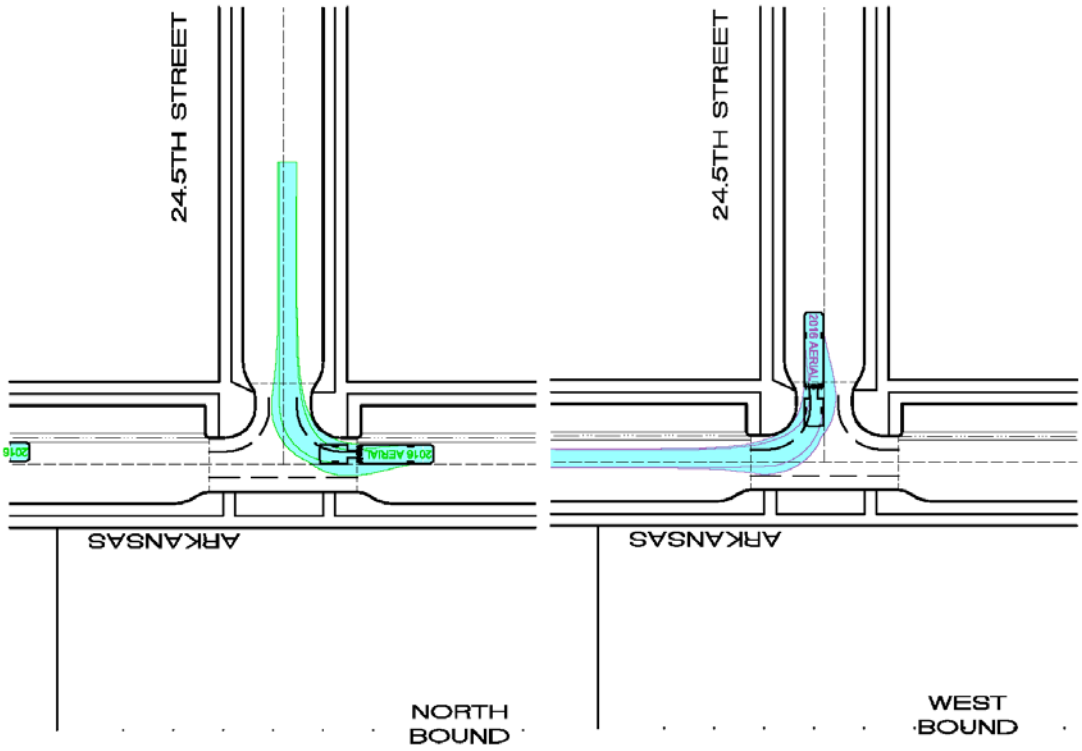

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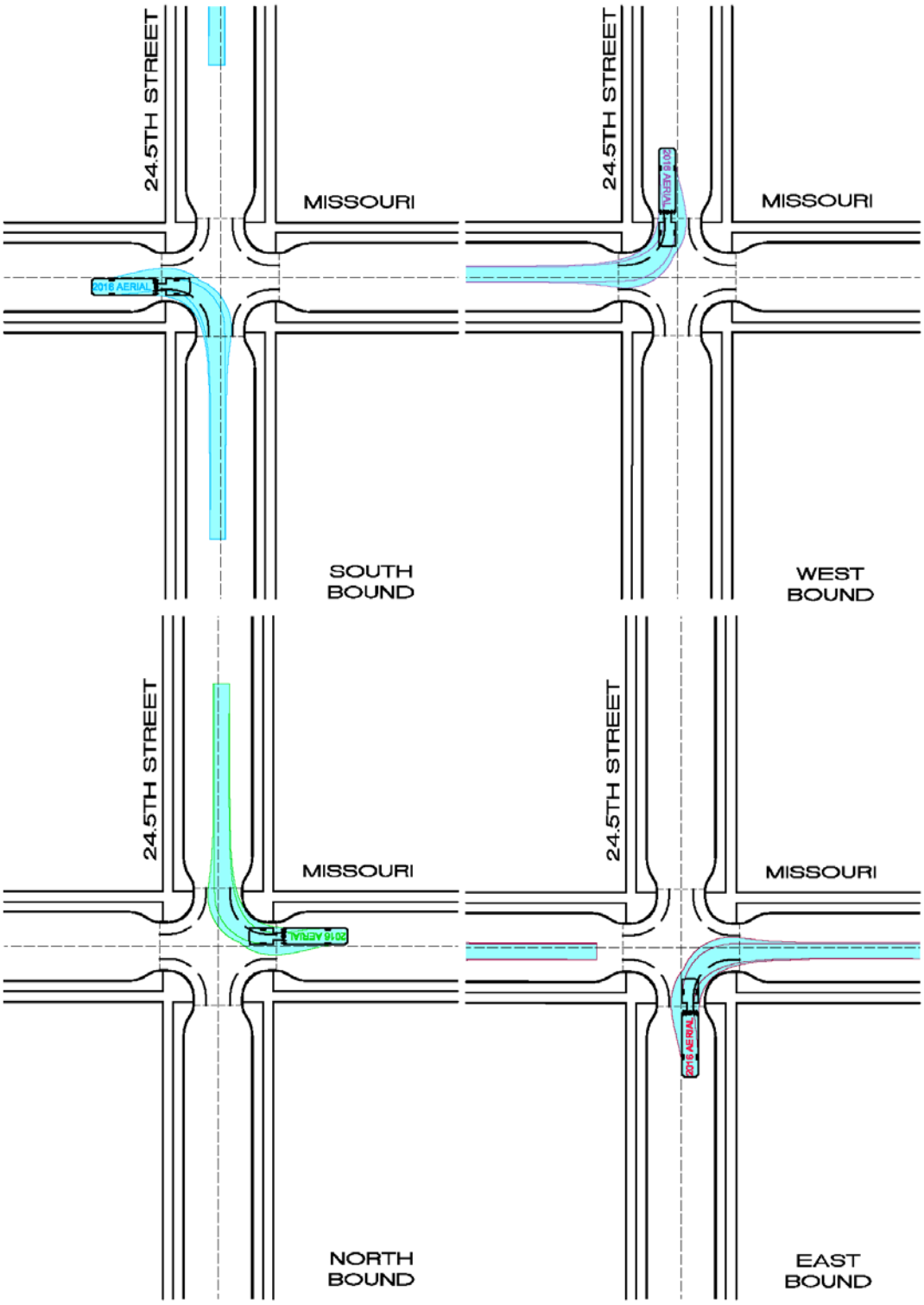

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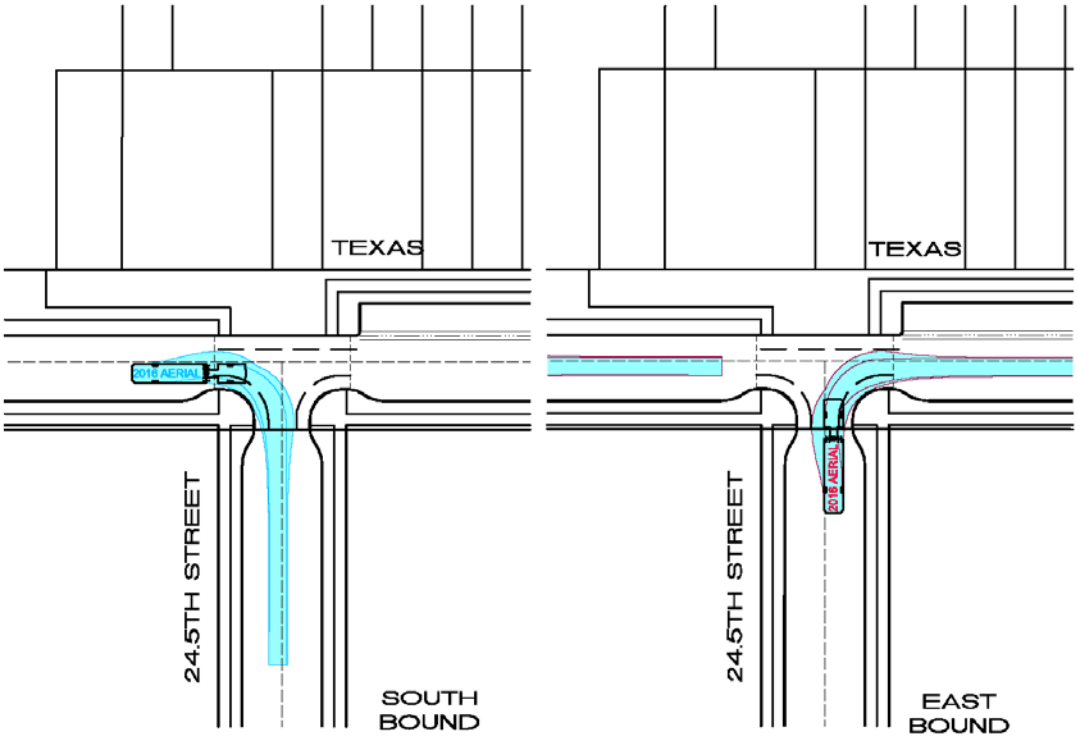
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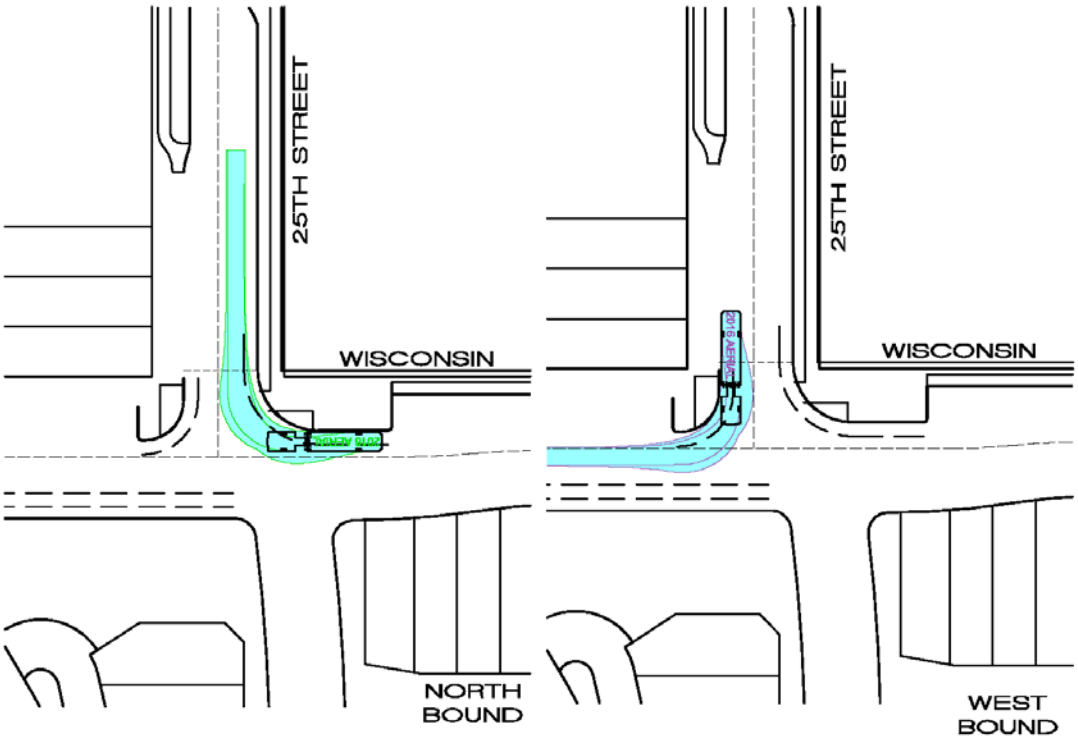
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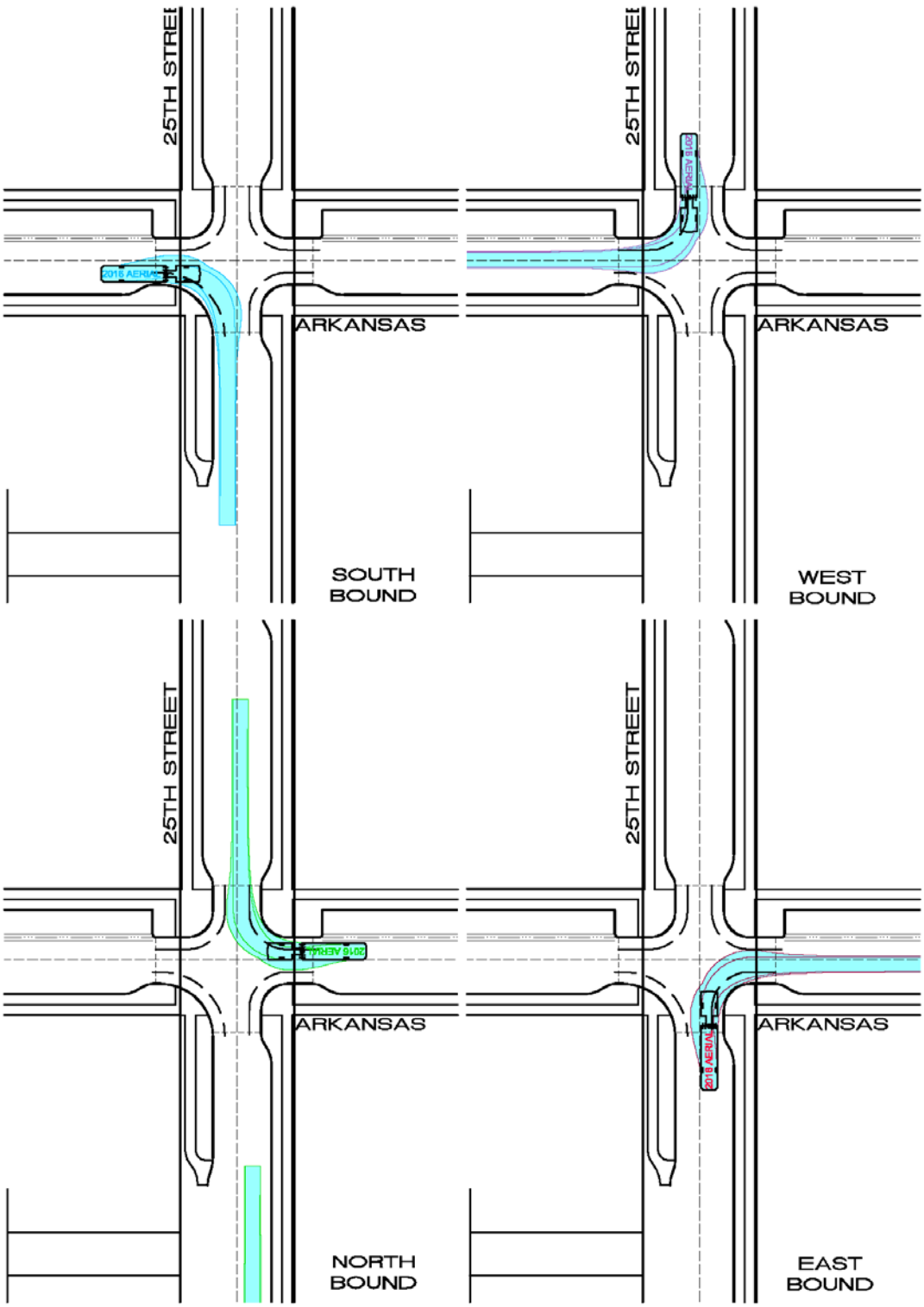

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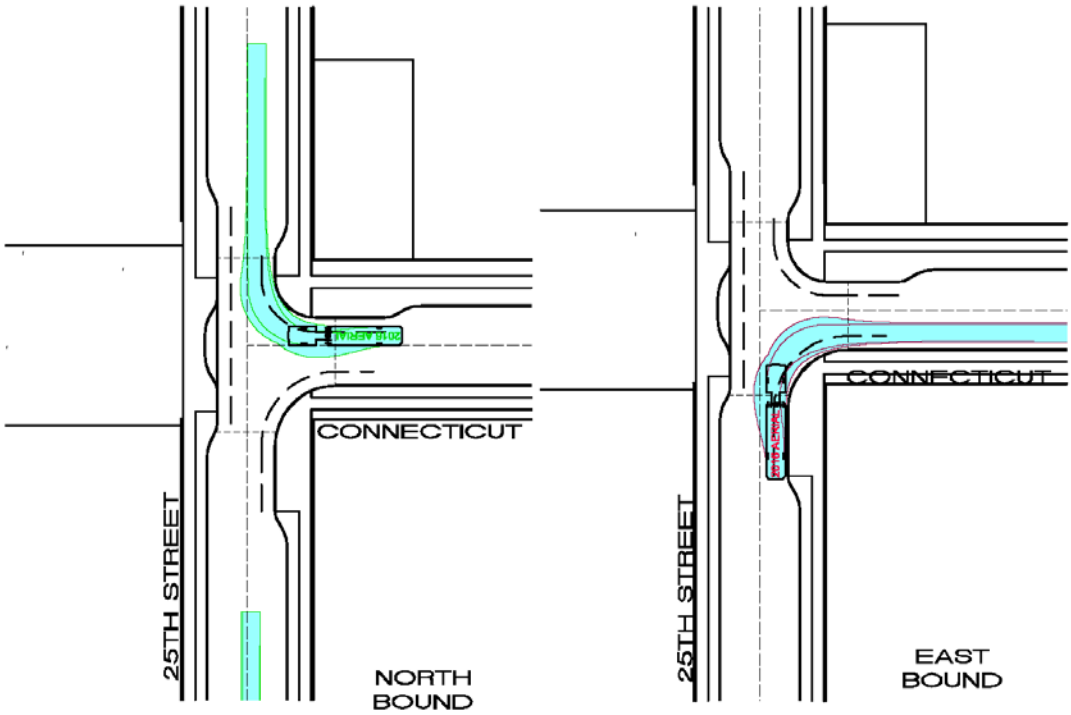
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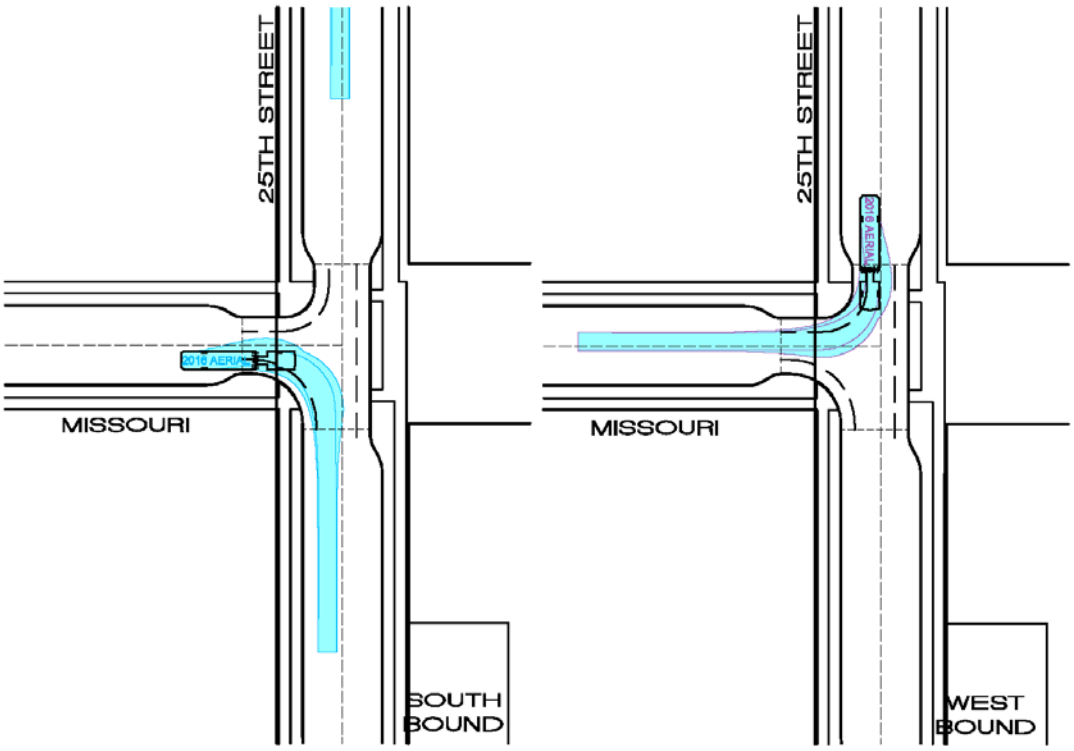

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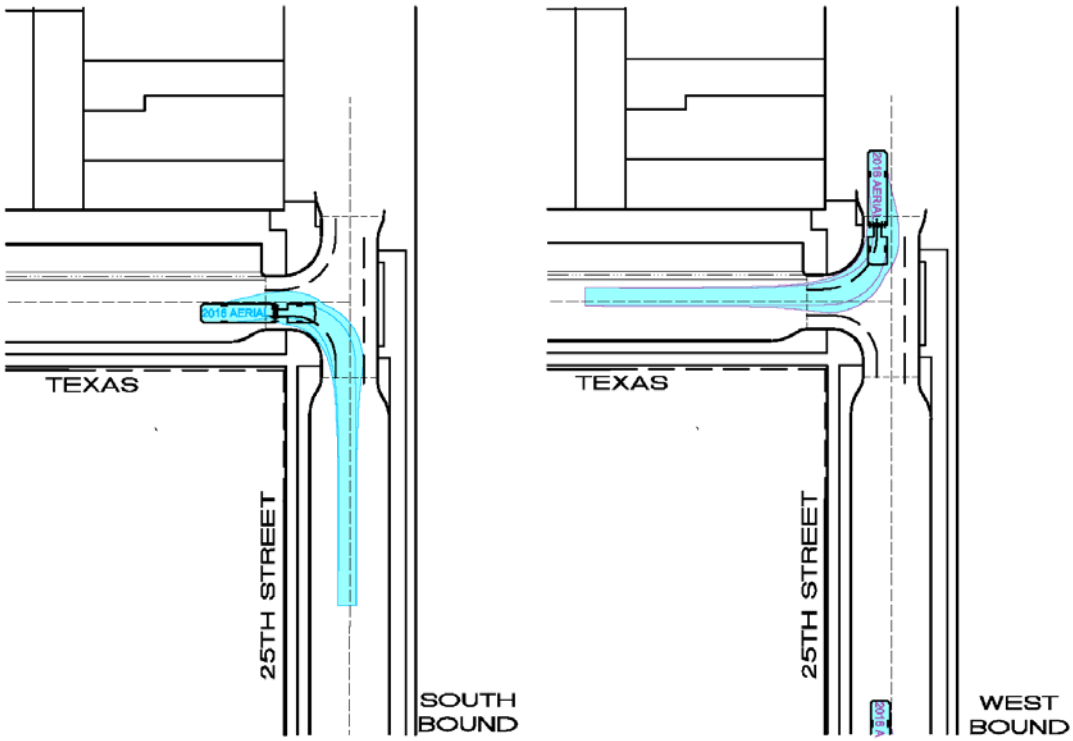

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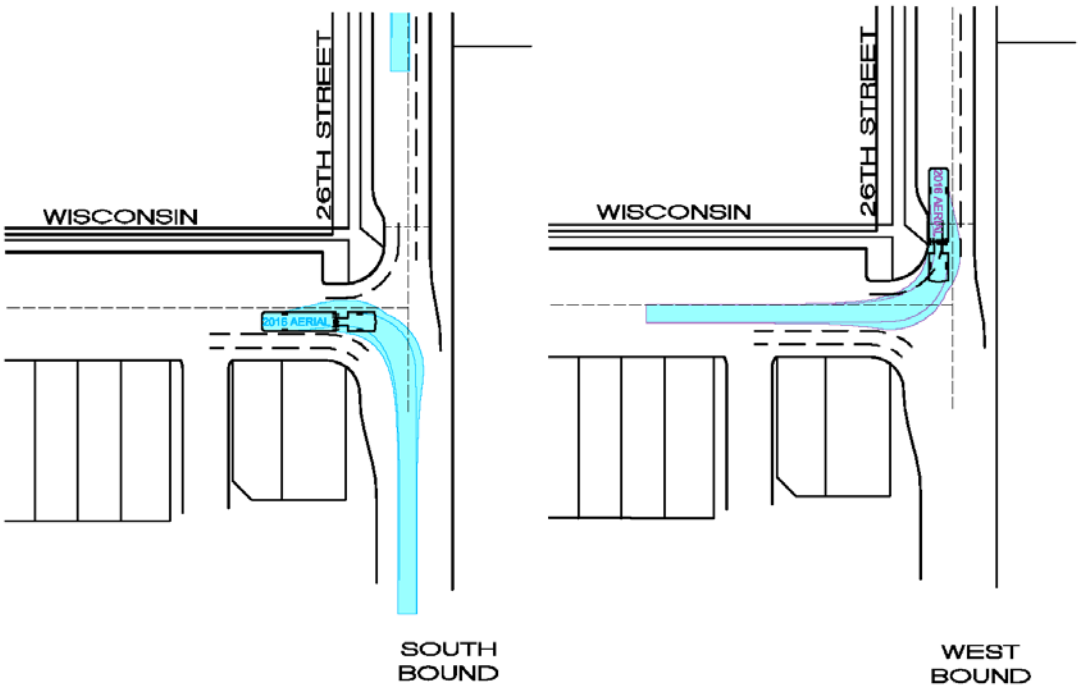
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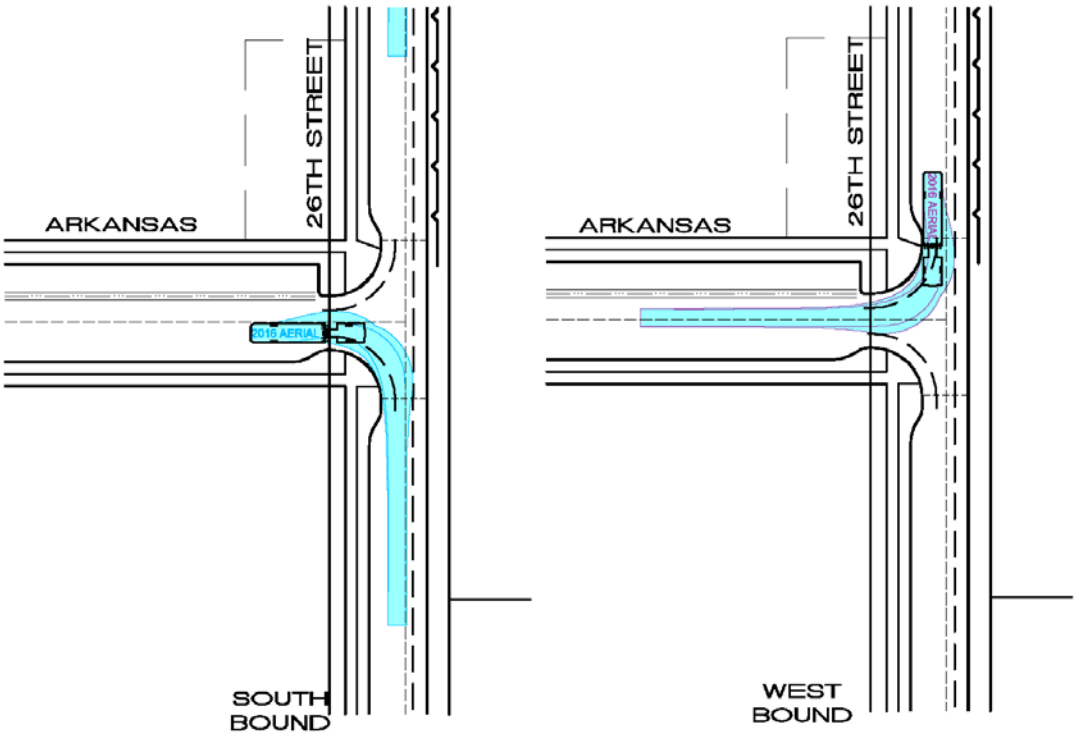
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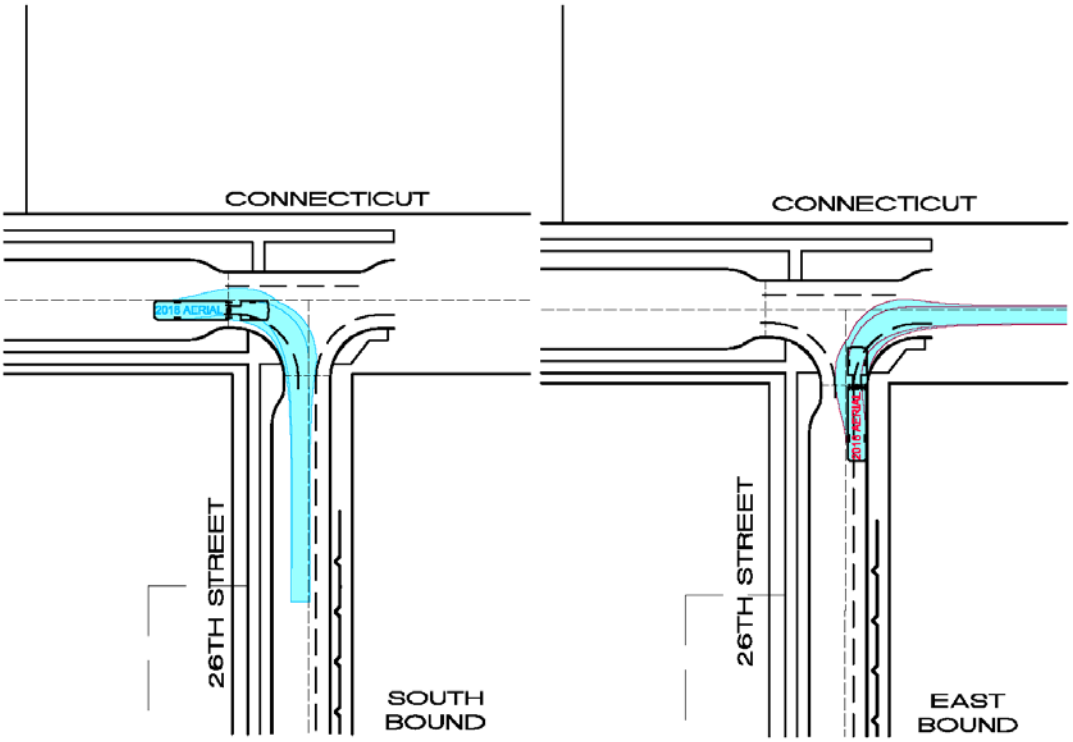
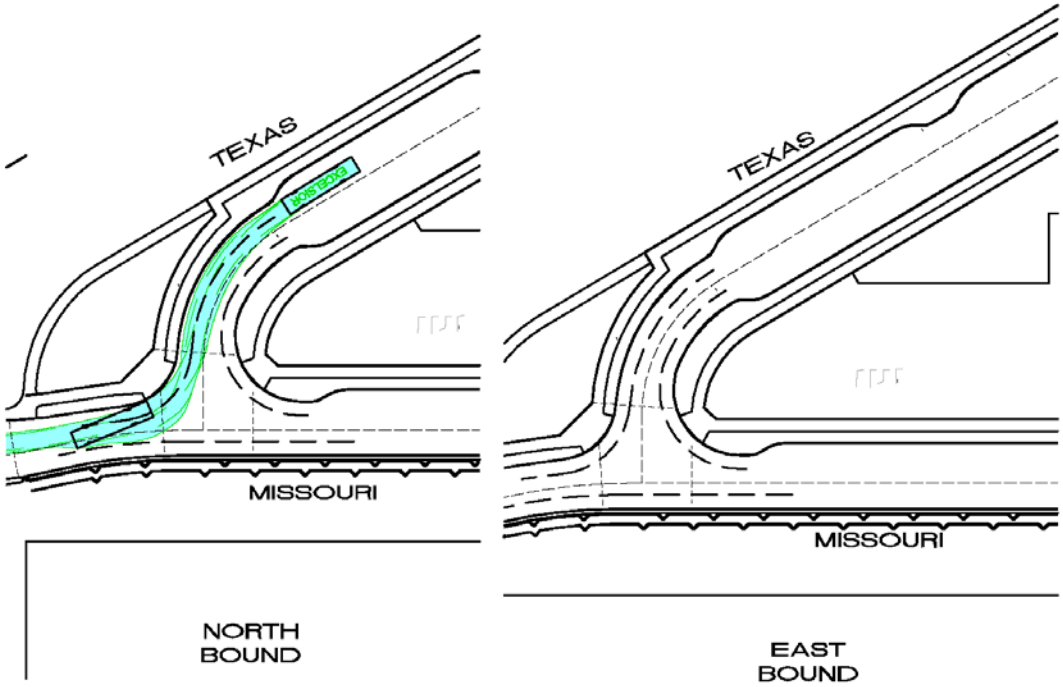
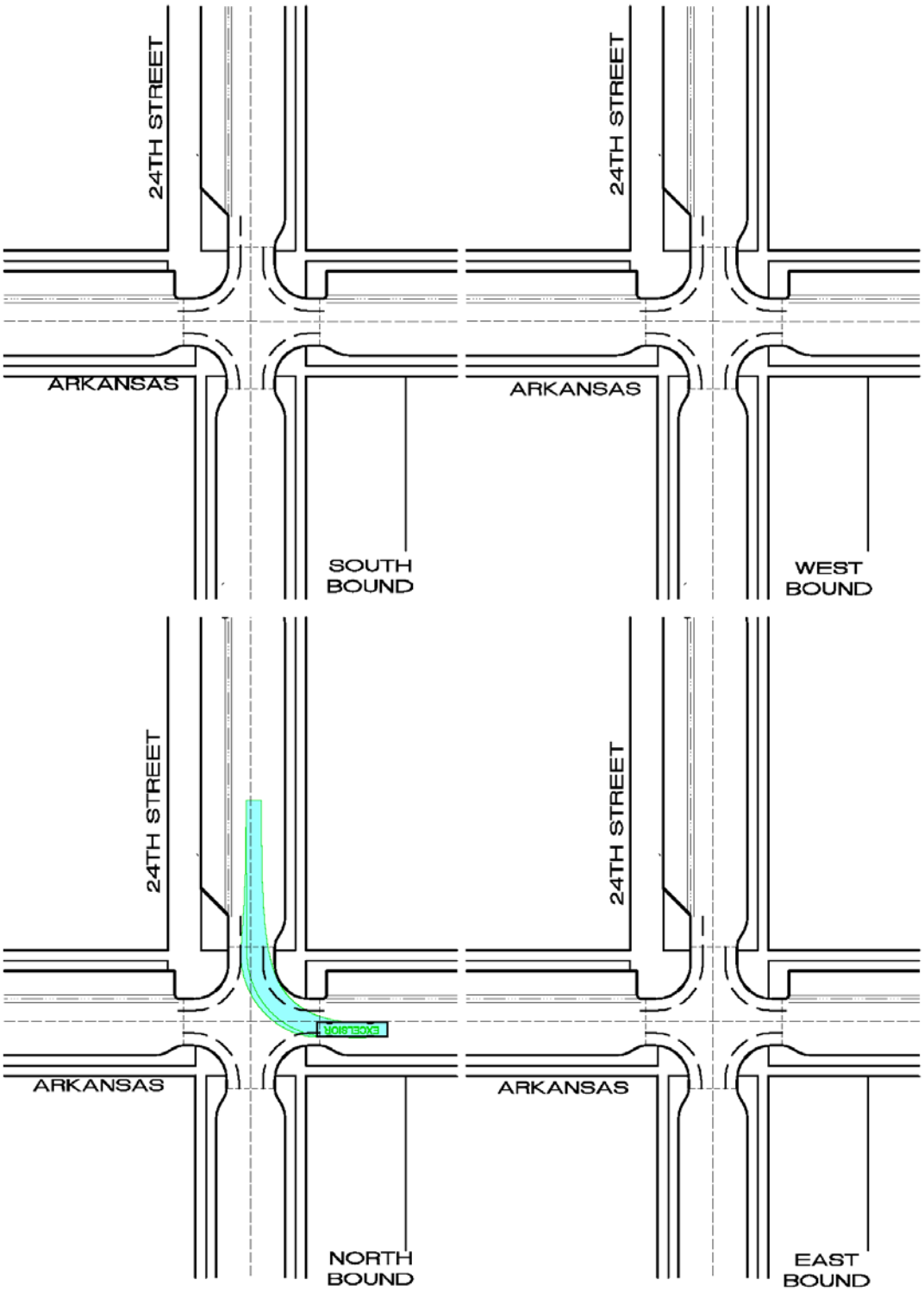


POTRERO MASTER
INFRASTRUCTURE PLAN

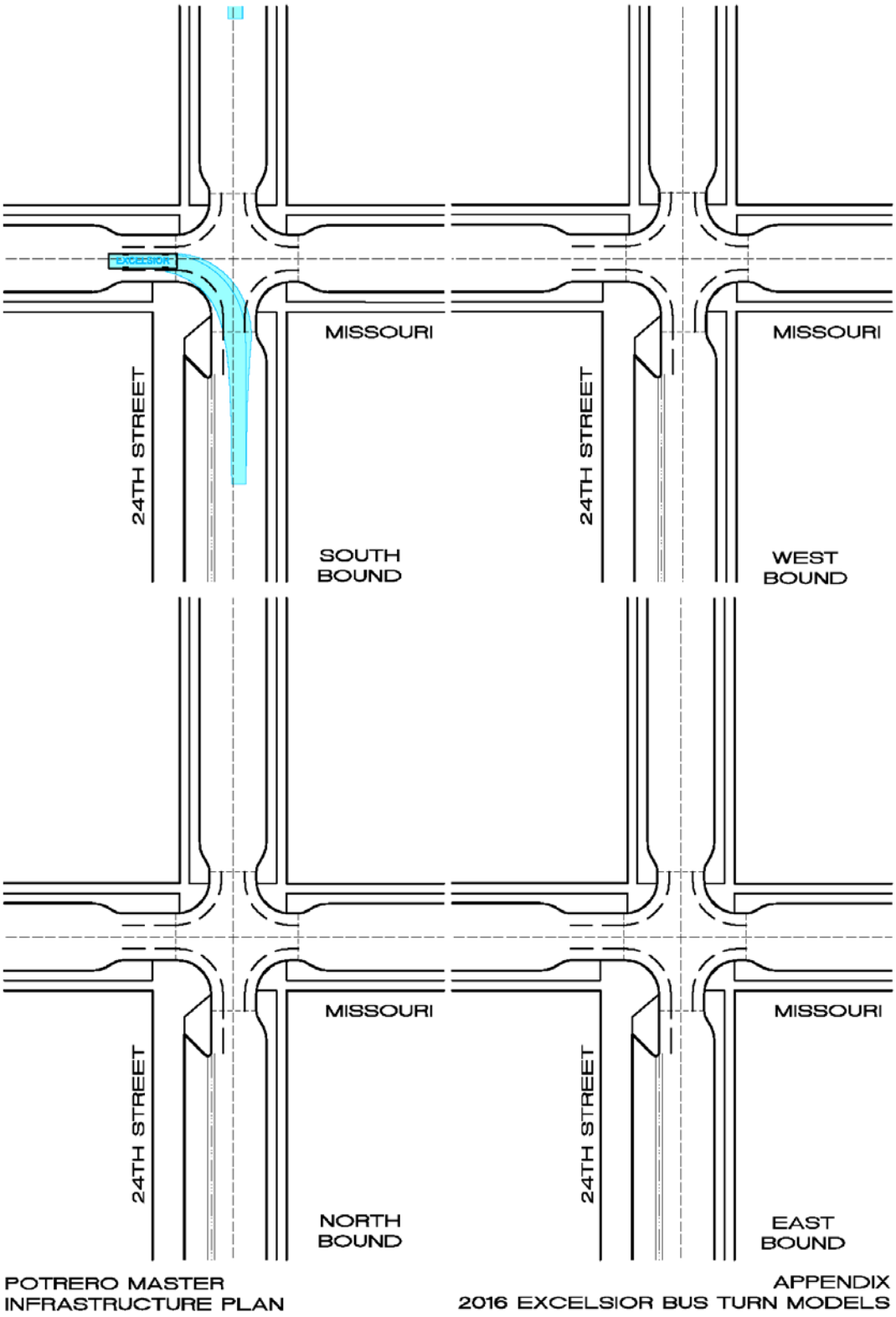
APPENDIX
2016 SFMTA FIRE AERIAL TURN MODELS


TEXAS
MISSOURI
NORTH
BOUND
TEXAS
MISSOURI
EAST
BOUND



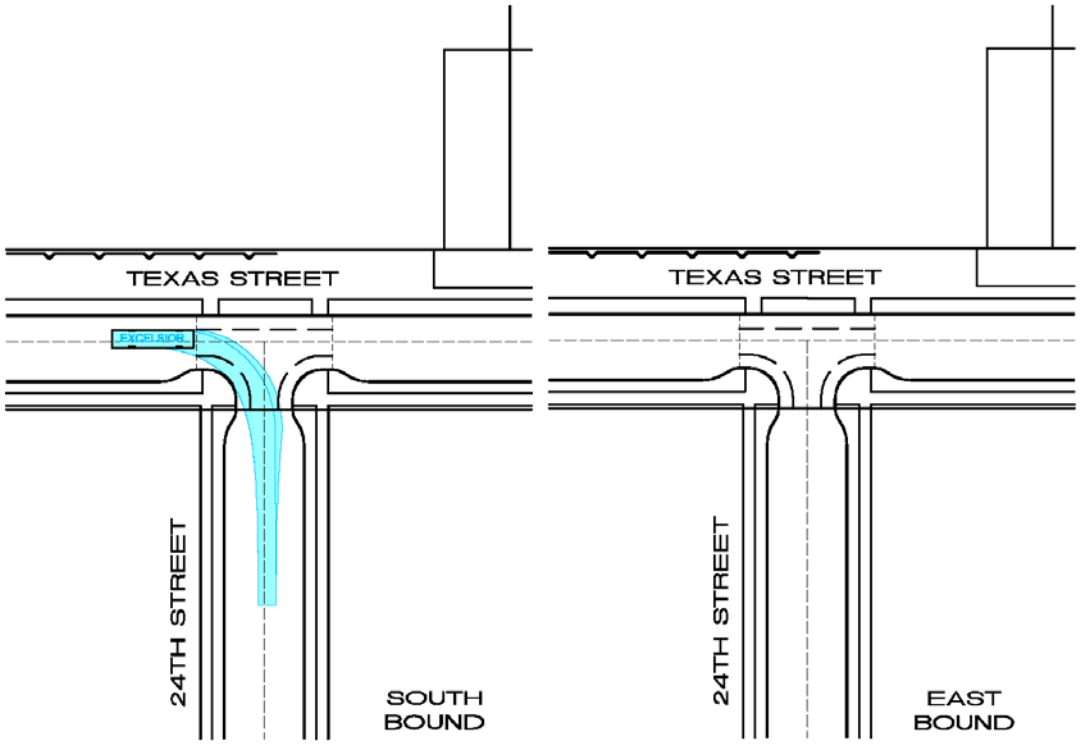
POTRERO MASTER
INFRASTRUCTURE PLAN

APPENDIX
2016 EXCELSIOR BUS TURN MODELS



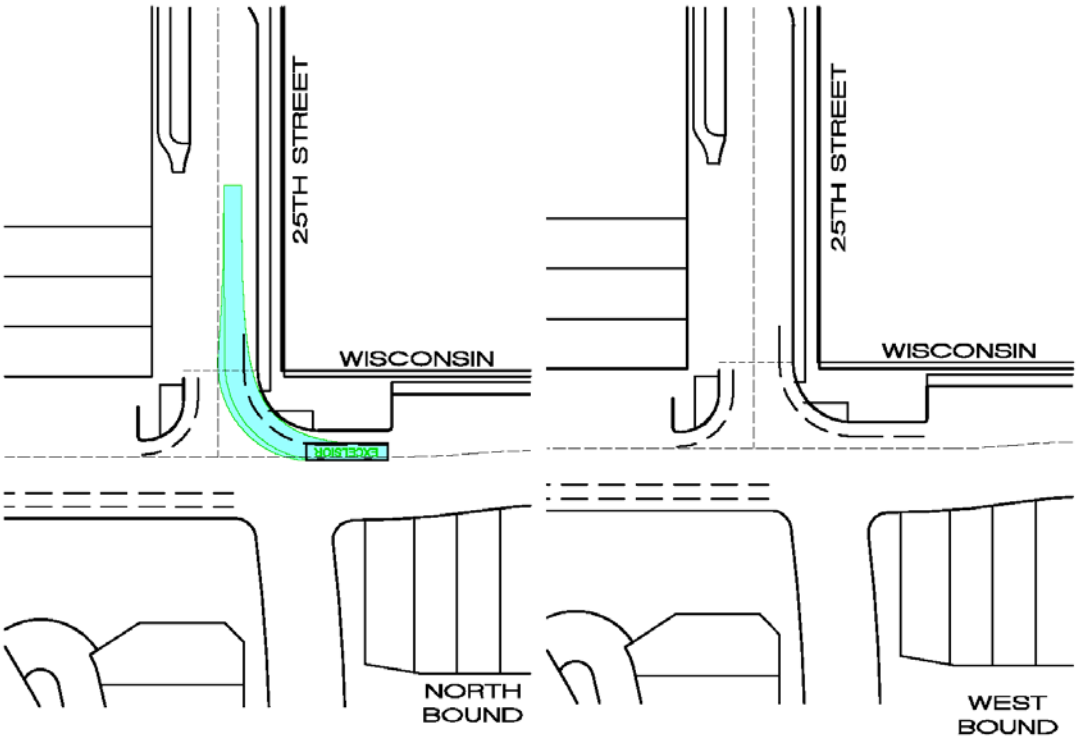
POTRERO MASTER
INFRASTRUCTURE PLAN

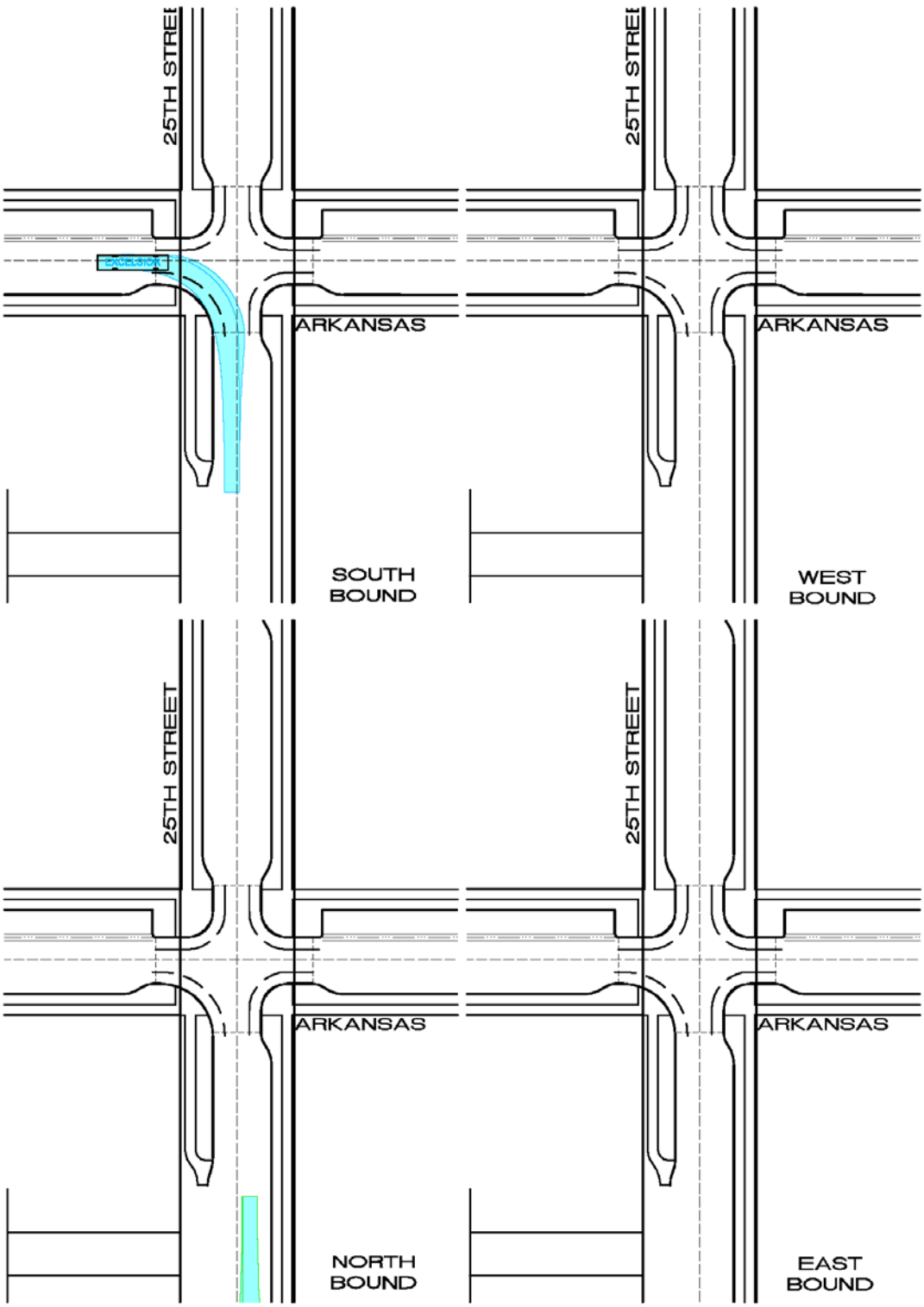
APPENDIX
2016 EXCELSIOR BUS TURN MODELS



POTRERO MASTER
INFRASTRUCTURE PLAN

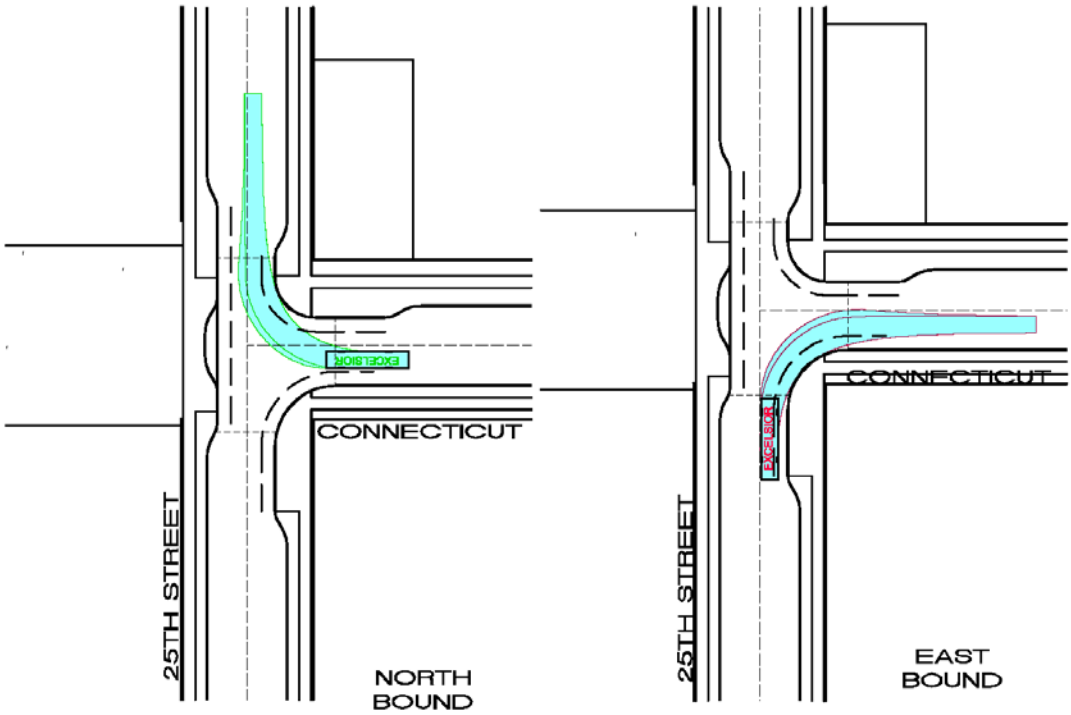
APPENDIX
2016 EXCELSIOR BUS TURN MODELS


25TH STREET
WISCONSIN
EXCELSIOR
NORTH
BOUND
25TH STREET
WISCONSIN
WEST
BOUND



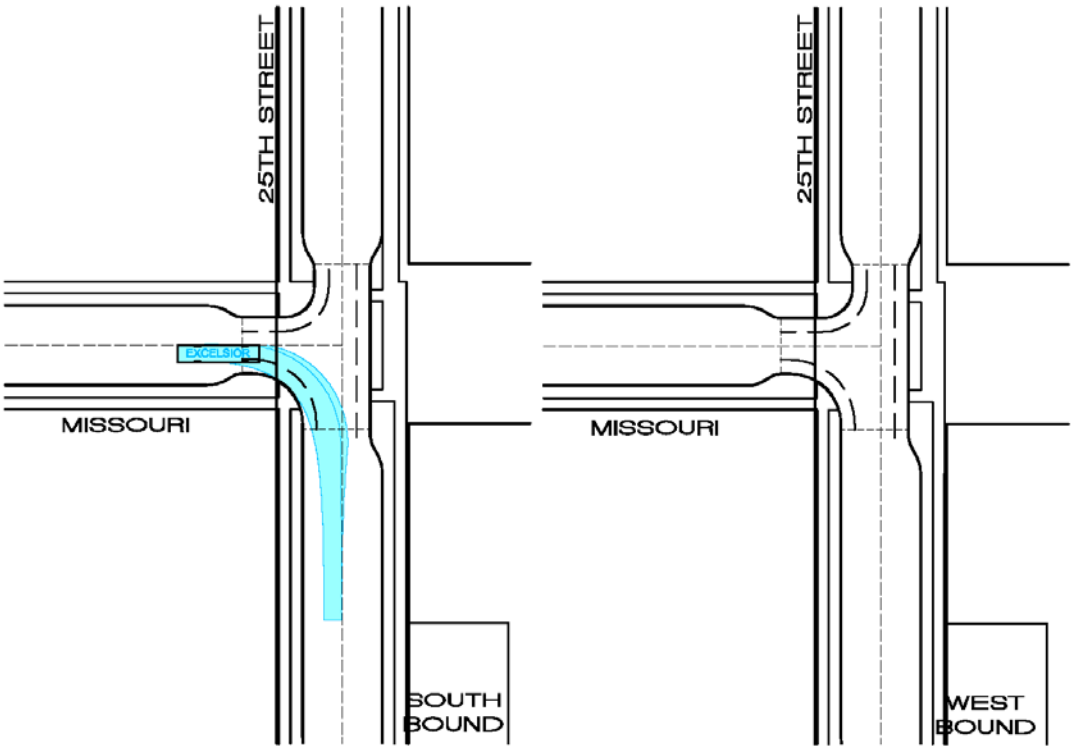
POTRERO MASTER INFRASTRUCTURE PLAN

APPENDIX
2016 EXCELSIOR BUS TURN MODELS



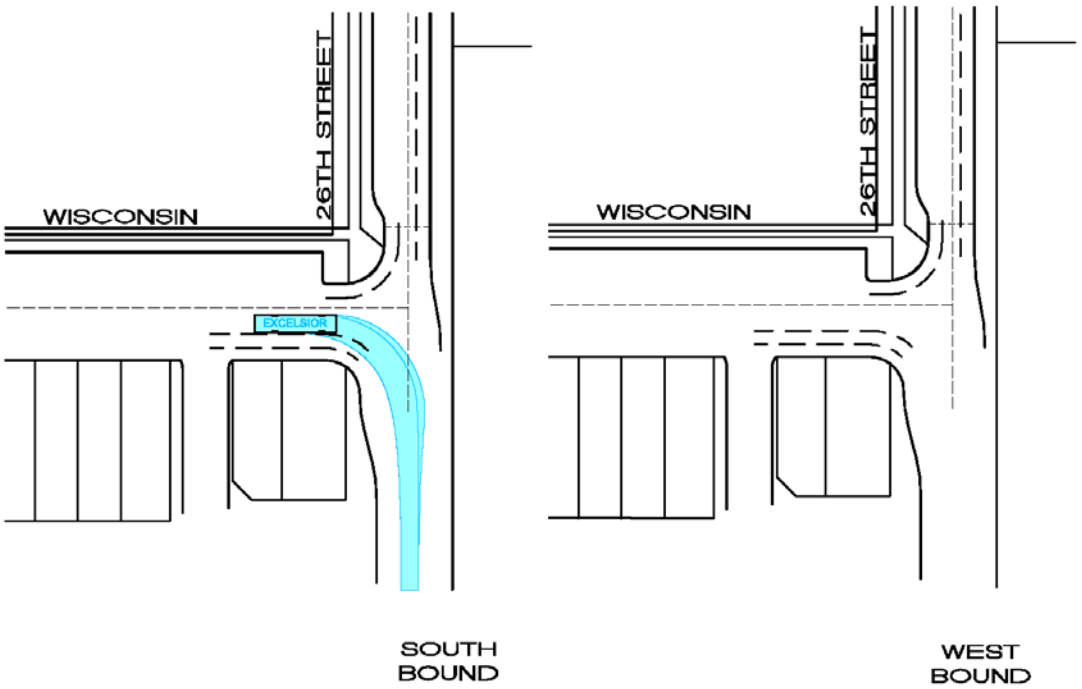
POTRERO MASTER
INFRASTRUCTURE PLAN

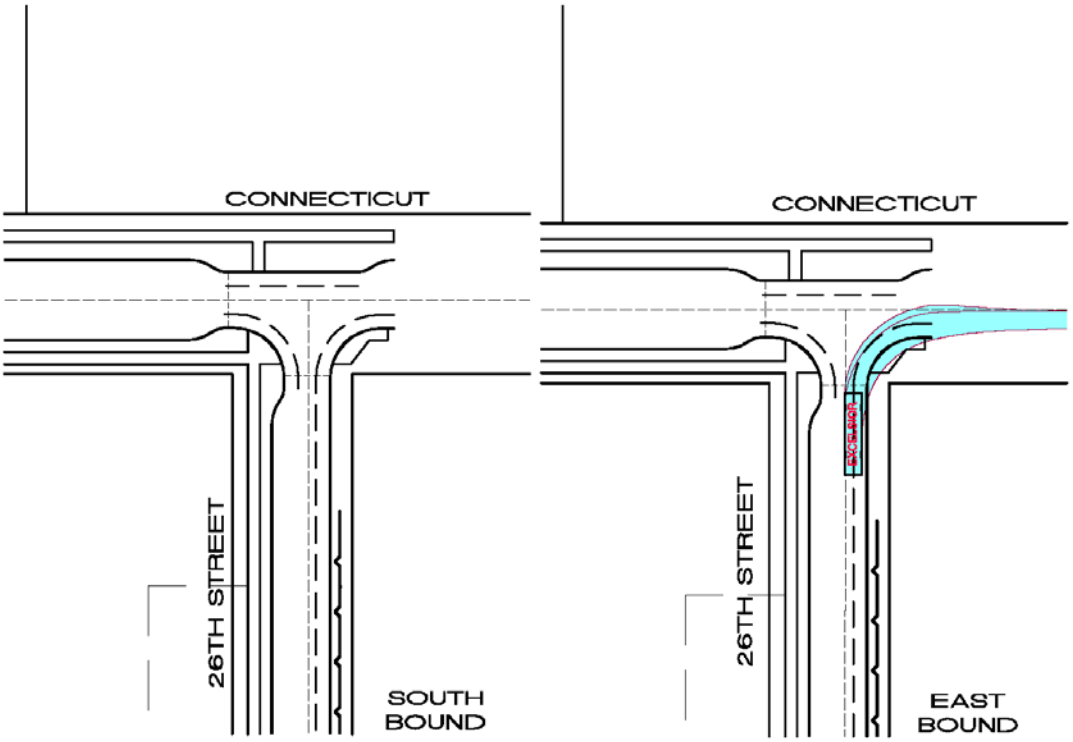
APPENDIX
2016 EXCELSIOR BUS TURN MODELS



POTRERO MASTER
INFRASTRUCTURE PLAN

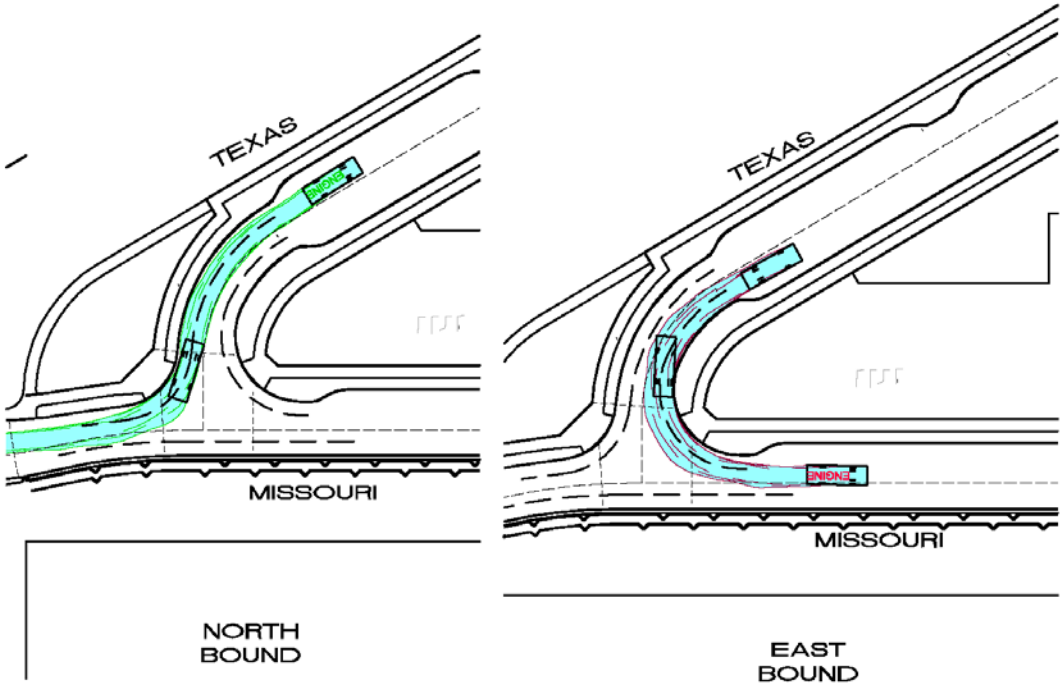
APPENDIX
2016 EXCELSIOR BUS TURN MODELS

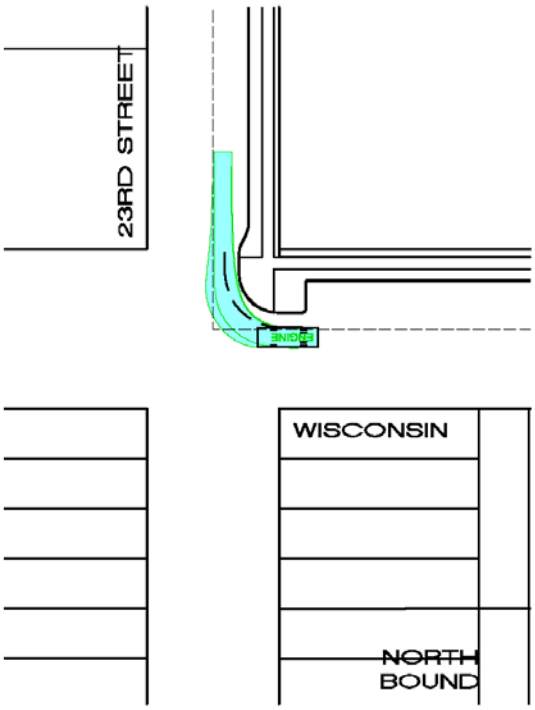

WISCONSIN
26TH STREET
EXCELSIOR
SOUTH BOUND
WISCONSIN
26TH STREET
WEST BOUND

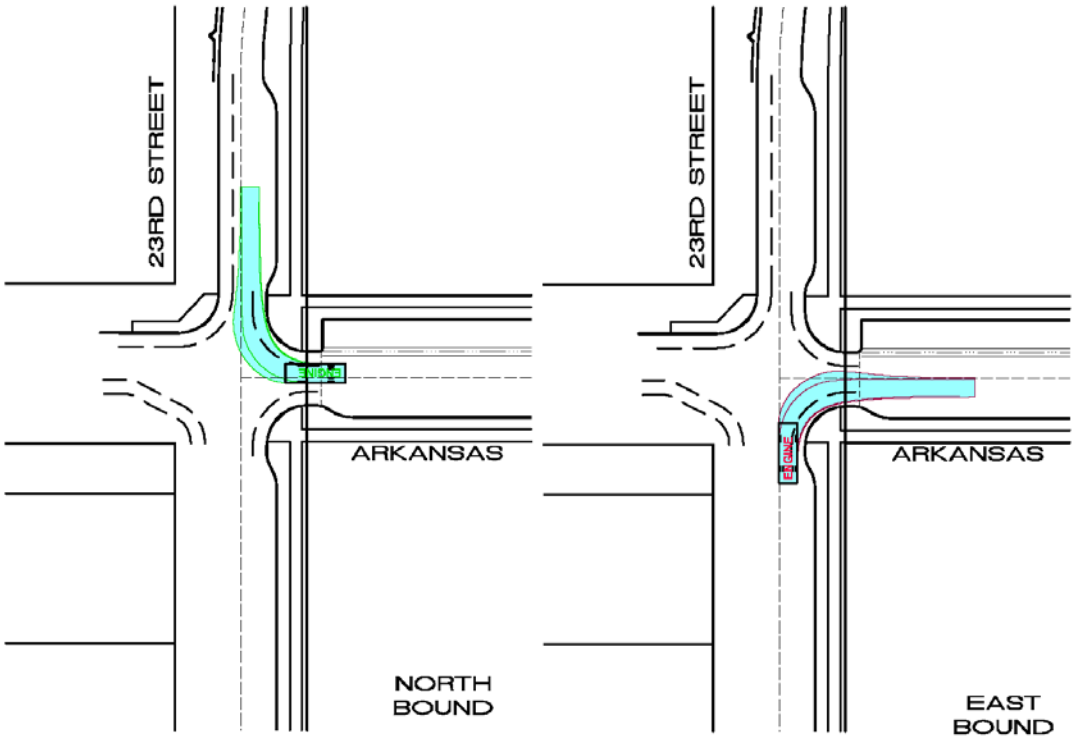


POTRERO MASTER
INFRASTRUCTURE PLAN

APPENDIX
2016 EXCELSIOR BUS TURN MODELS

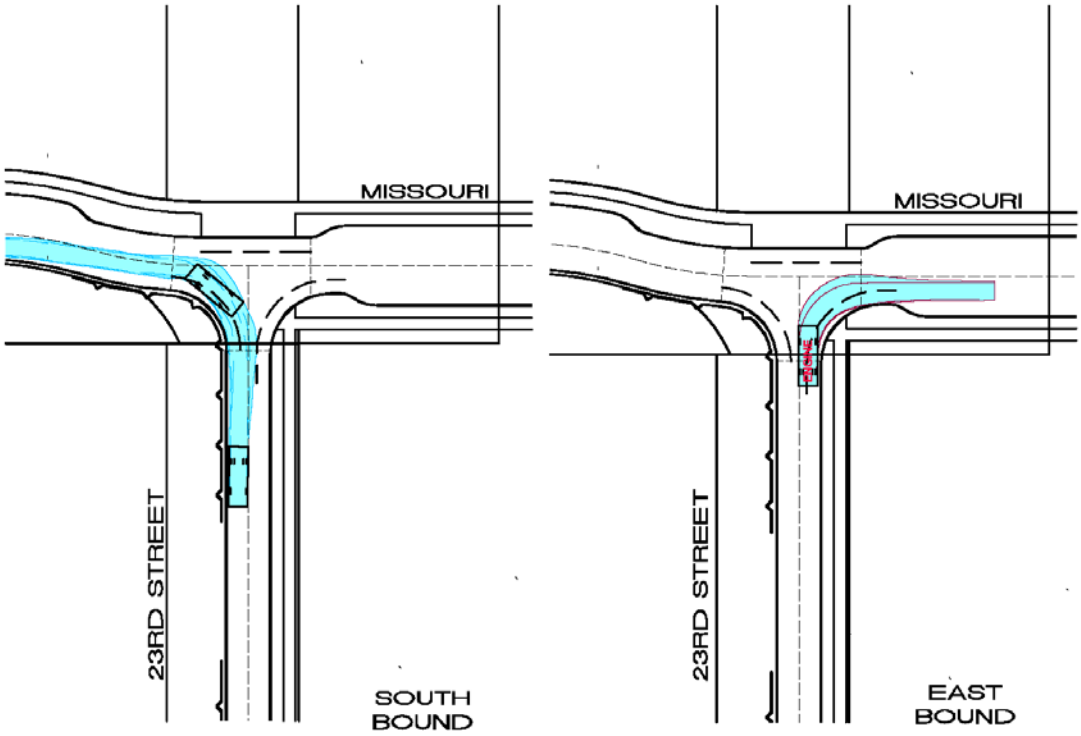

TEXAS
ENGINE
MISSOURI
NORTH
BOUND
TEXAS
ENGINE
MISSOURI
EAST
BOUND

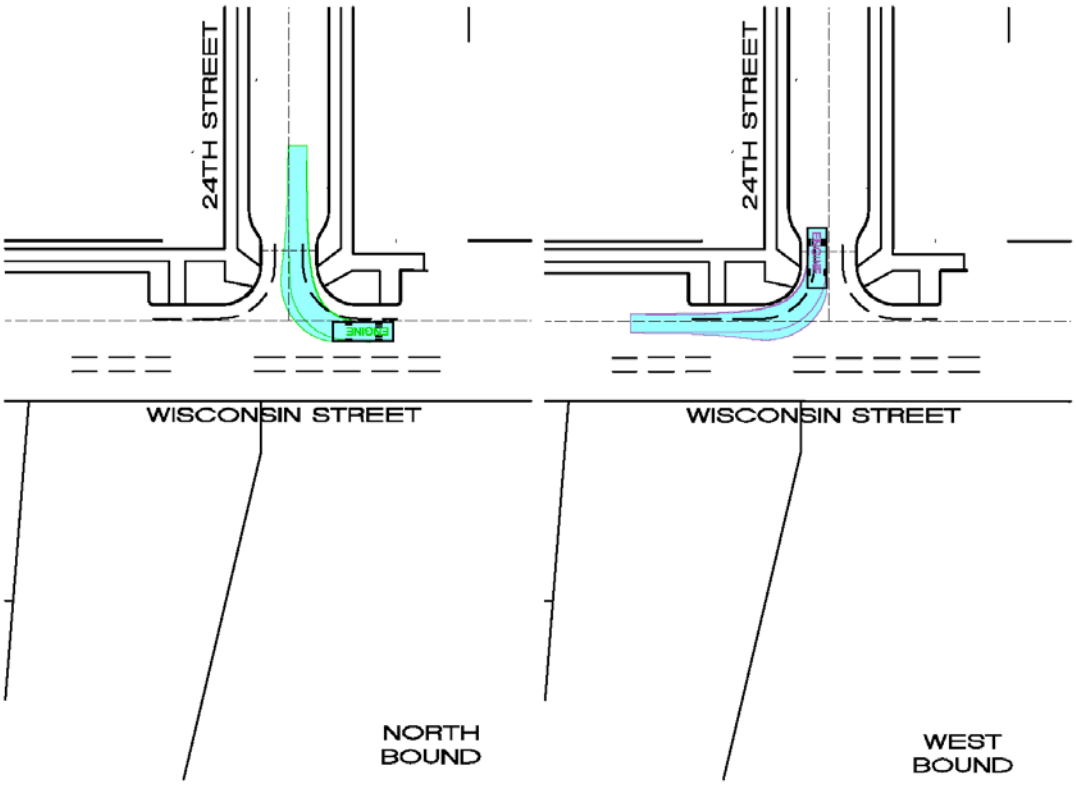

23RD STREET
ENGINE
WISCONSIN
NORTH
BOUND



POTRERO MASTER
INFRASTRUCTURE PLAN

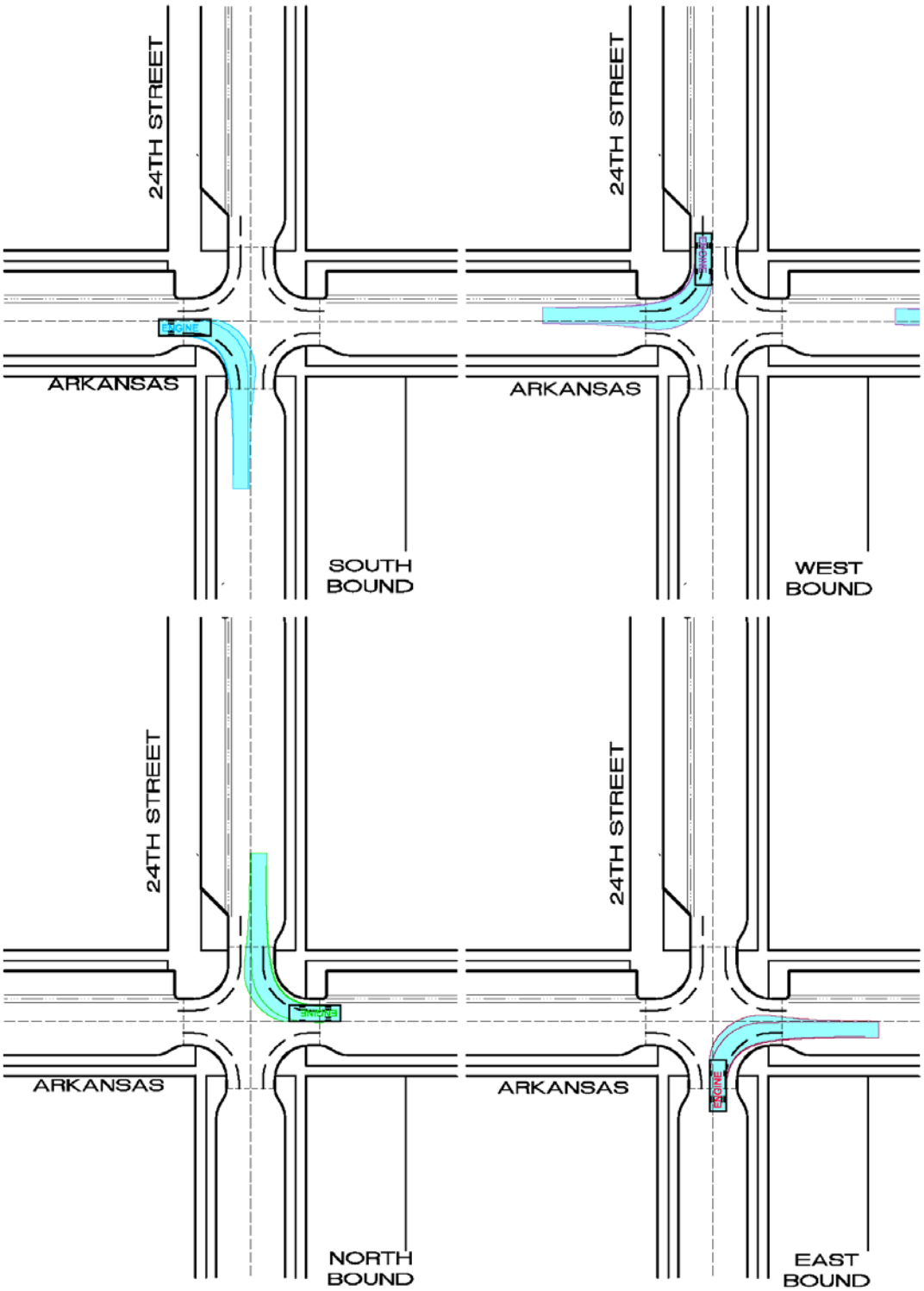
APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS


MISSOURI
23RD STREET
SOUTH BOUND
MISSOURI
23RD STREET
EAST BOUND



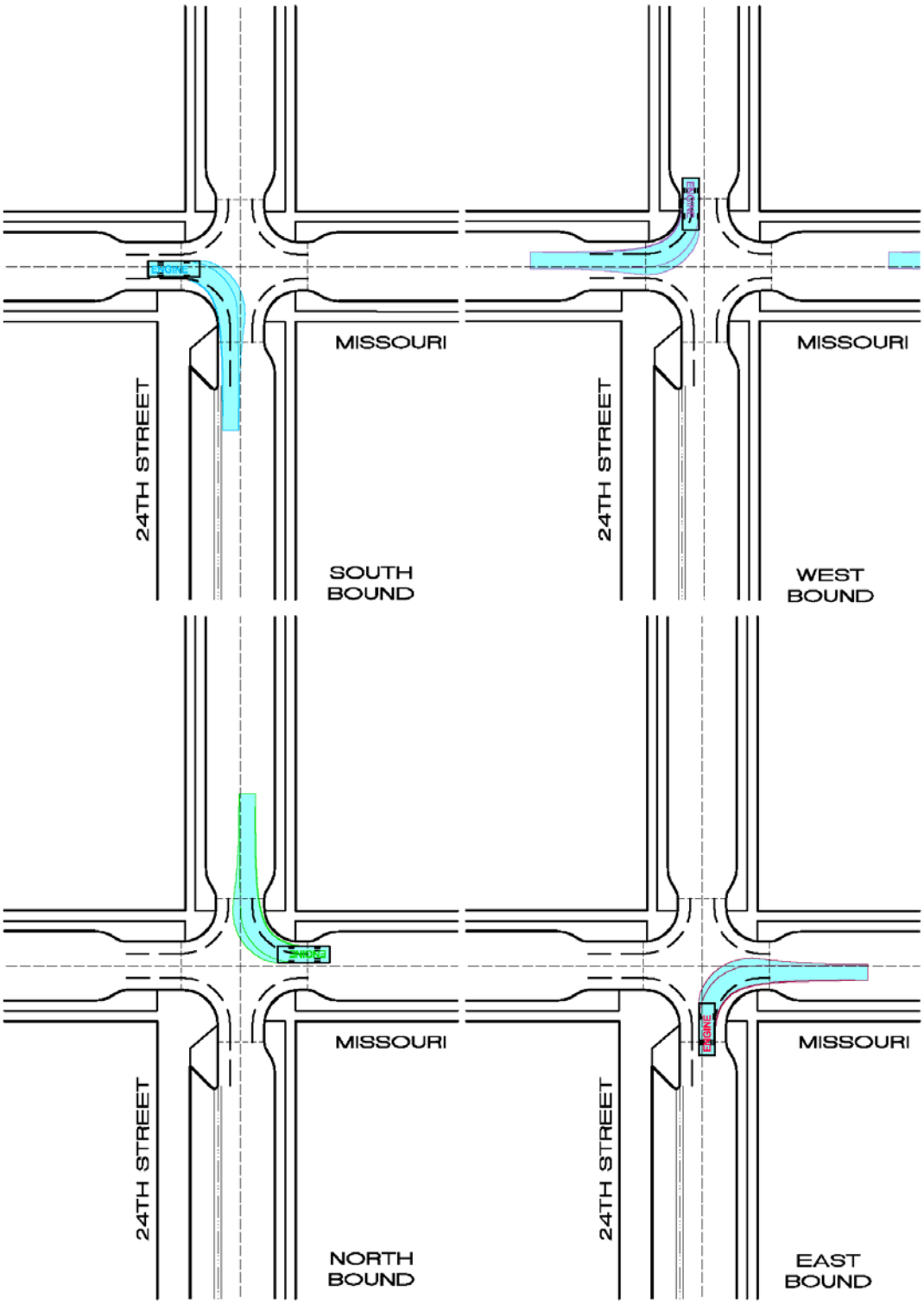
POTRERO MASTER
INFRASTRUCTURE PLAN

APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS



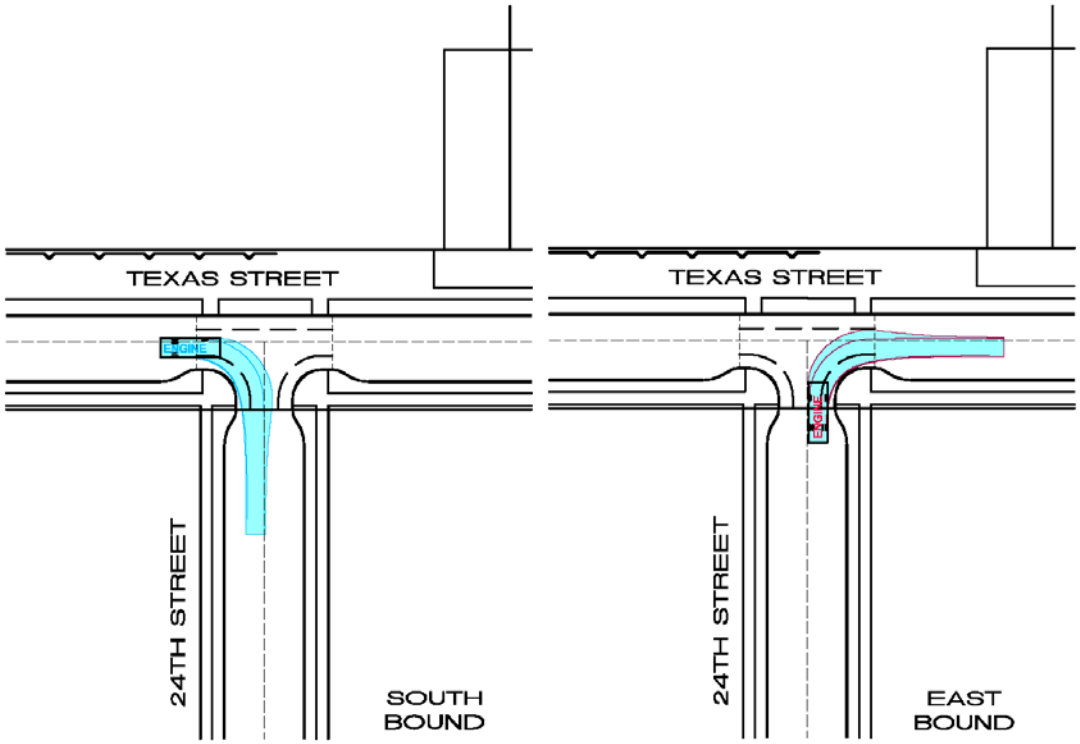
POTRERO MASTER INFRASTRUCTURE PLAN

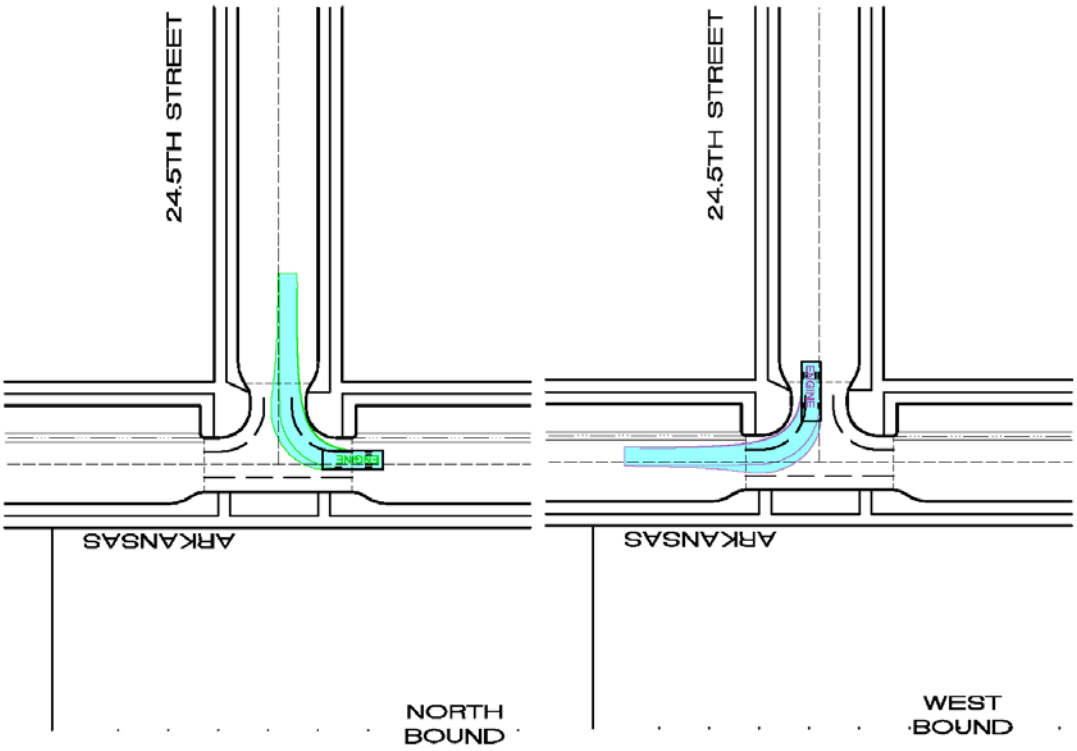
APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS



POTRERO MASTER INFRASTRUCTURE PLAN

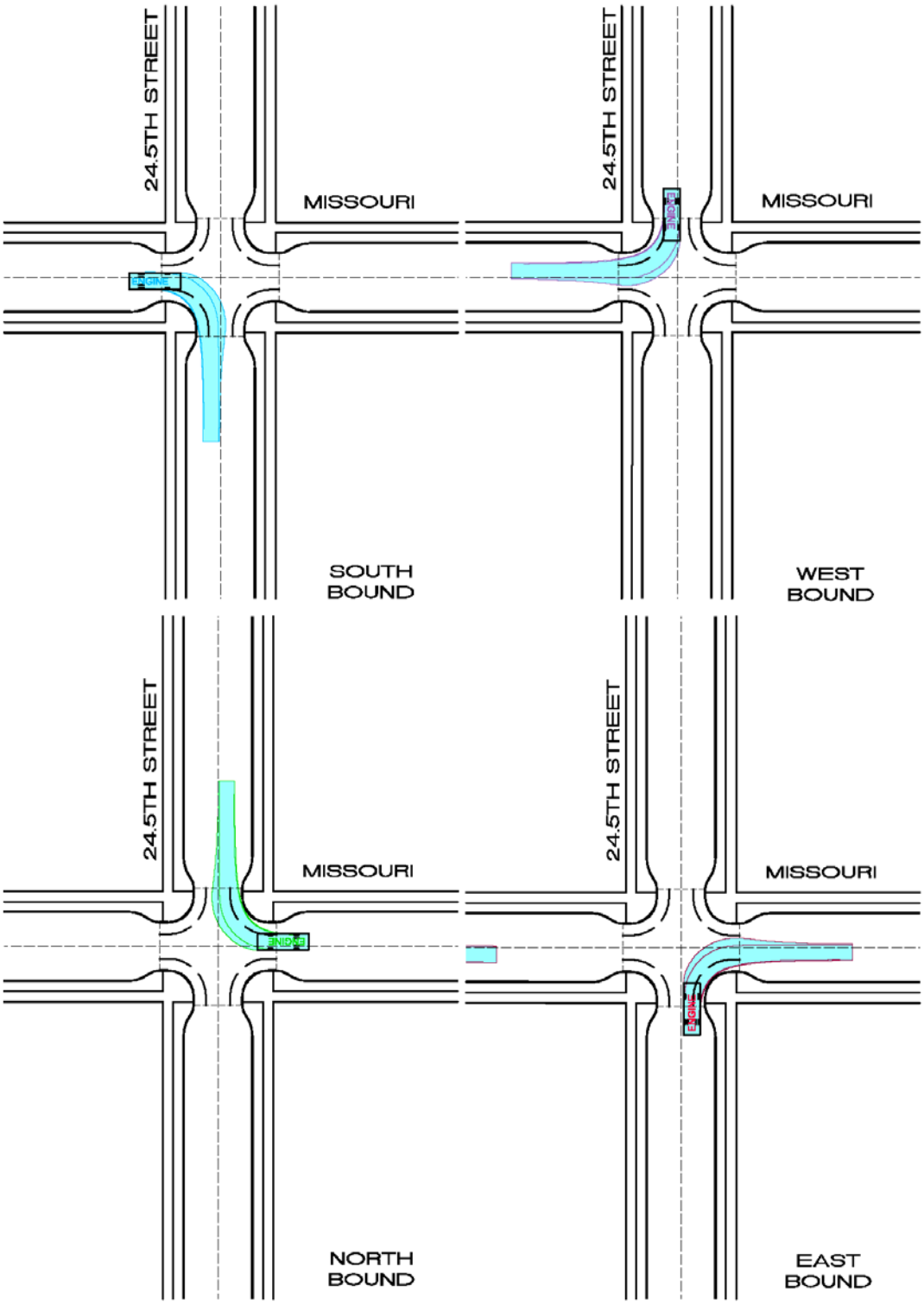
APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS


TEXAS STREET
ENGINE
24TH STREET
SOUTH
BOUND
TEXAS STREET
ENGINE
24TH STREET
EAST
BOUND



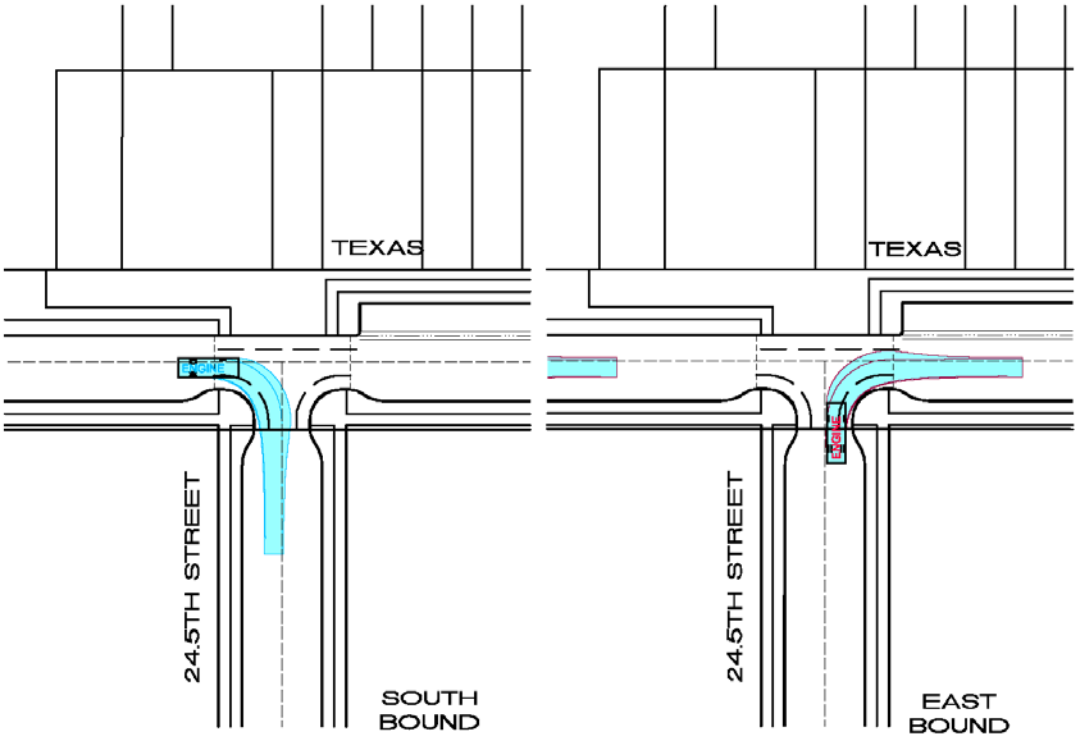
POTRERO MASTER INFRASTRUCTURE PLAN

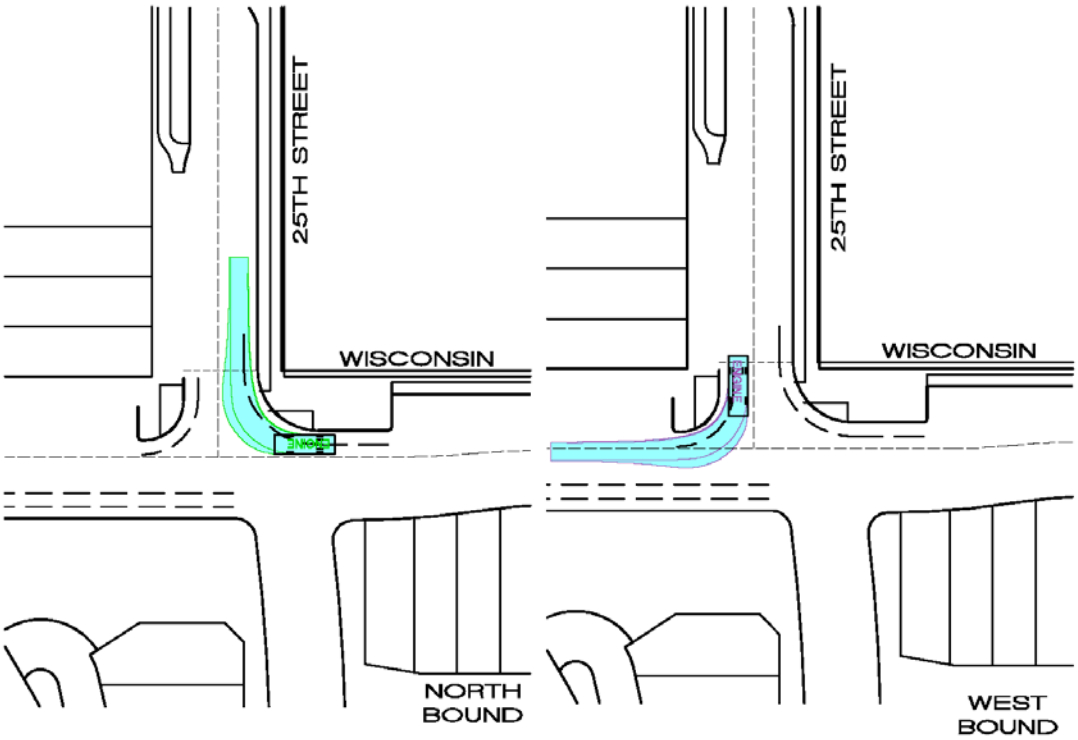
APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS

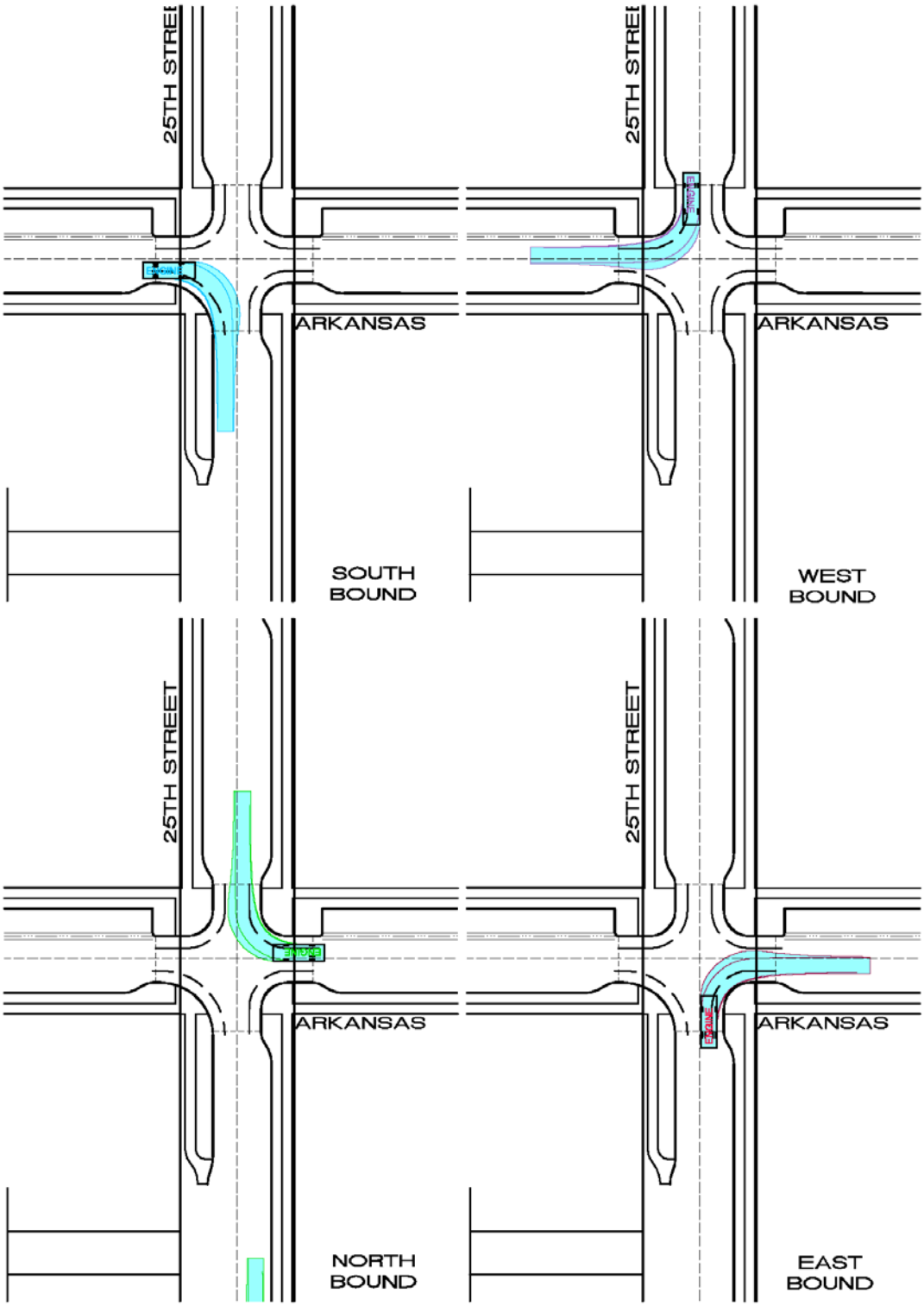


POTRERO MASTER INFRASTRUCTURE PLAN

APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS

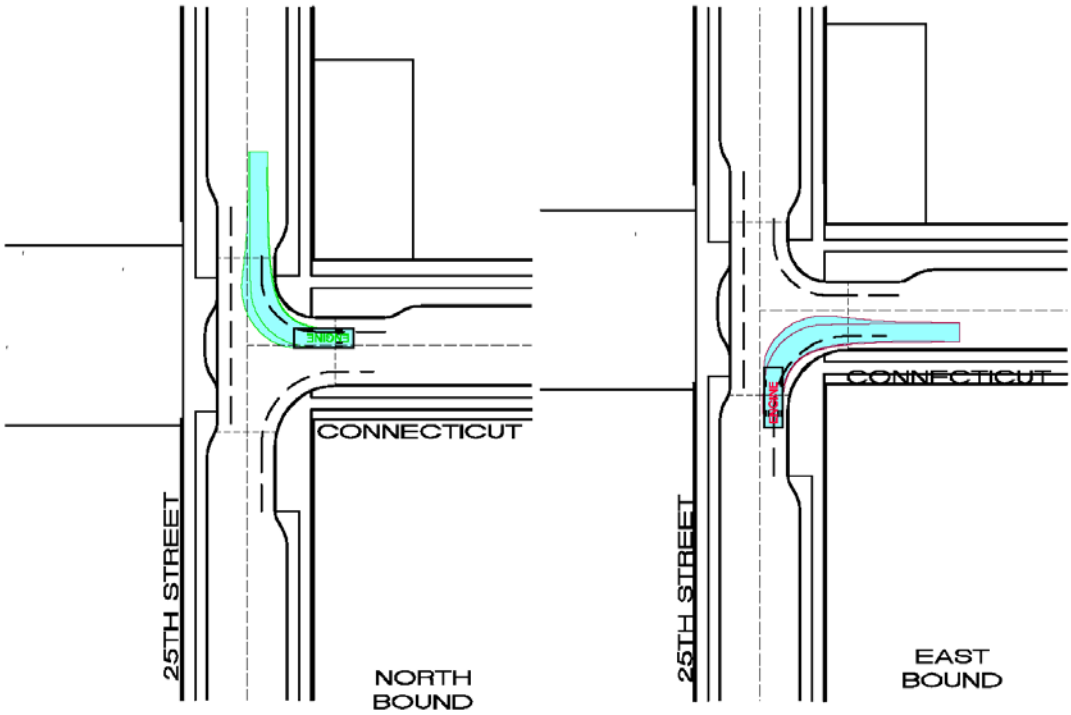

TEXAS
24.5TH STREET
SOUTH BOUND
TEXAS
24.5TH STREET
EAST BOUND

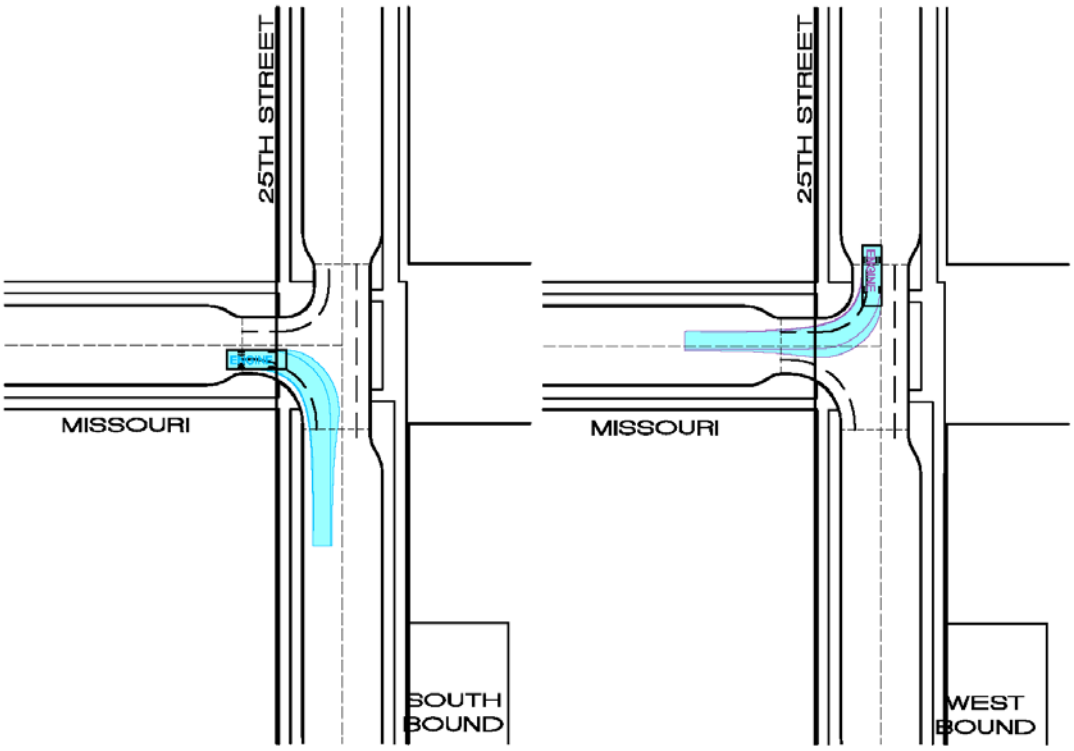

25TH STREET
WISCONSIN
NORTH
BOUND
25TH STREET
WISCONSIN
WEST
BOUND

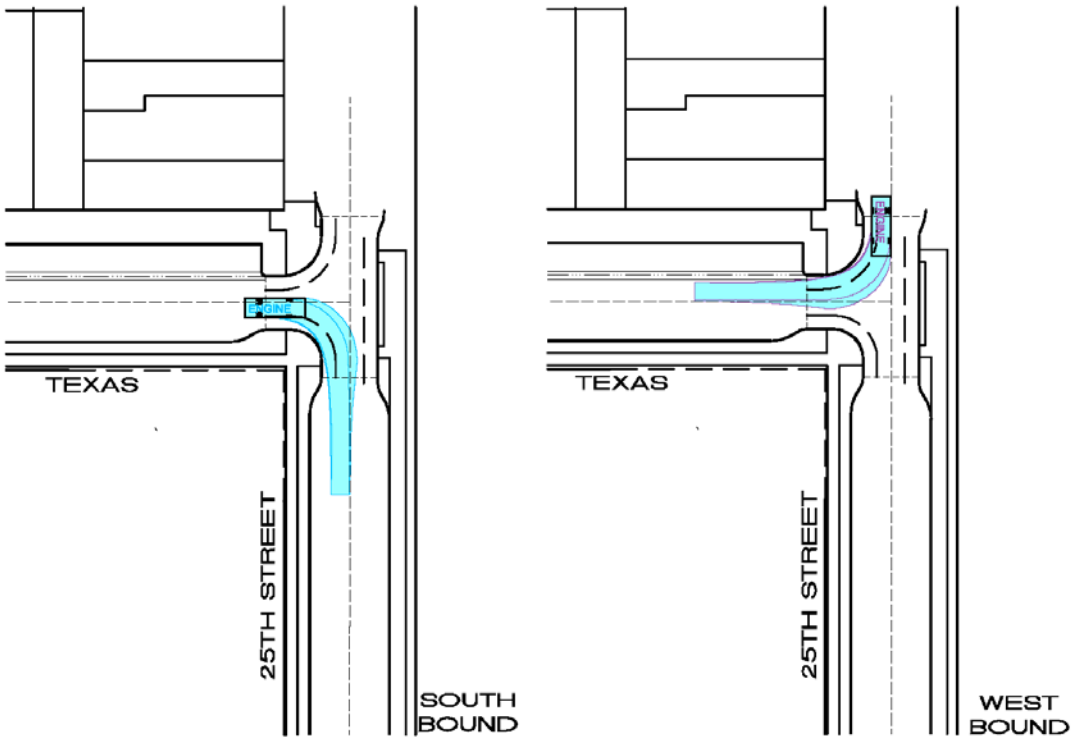


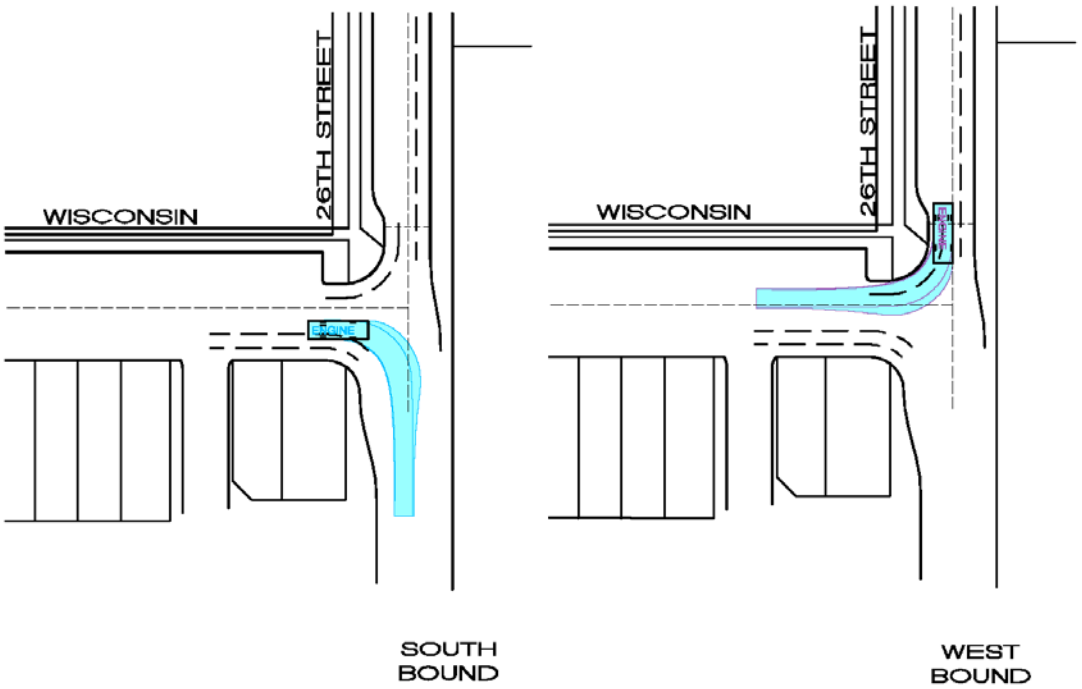
POTRERO MASTER INFRASTRUCTURE PLAN

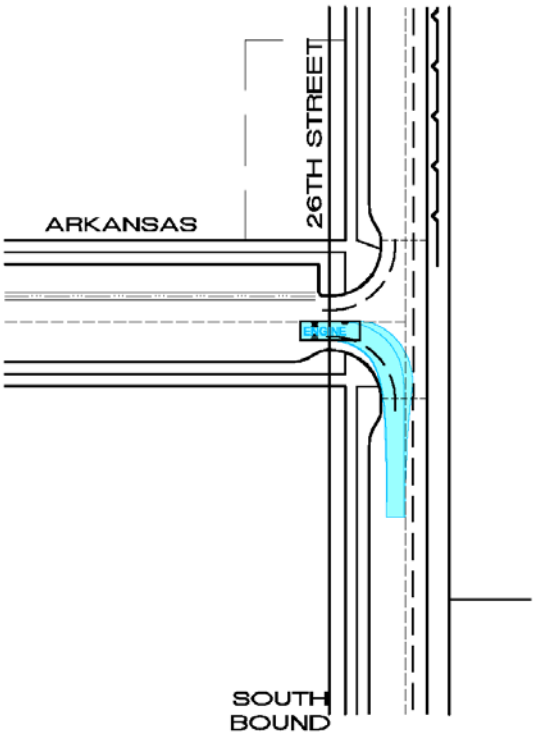
APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS

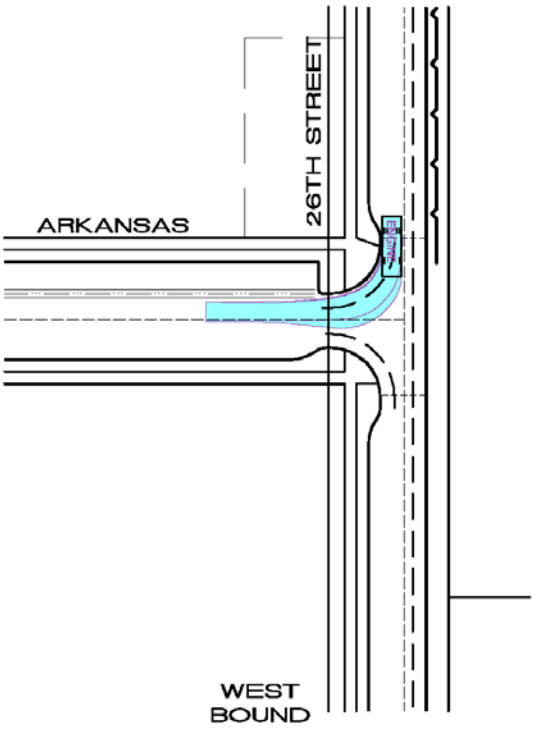

ENGINE
CONNECTICUT
25TH STREET
NORTH
BOUND
ENGINE
CONNECTICUT
25TH STREET
EAST
BOUND

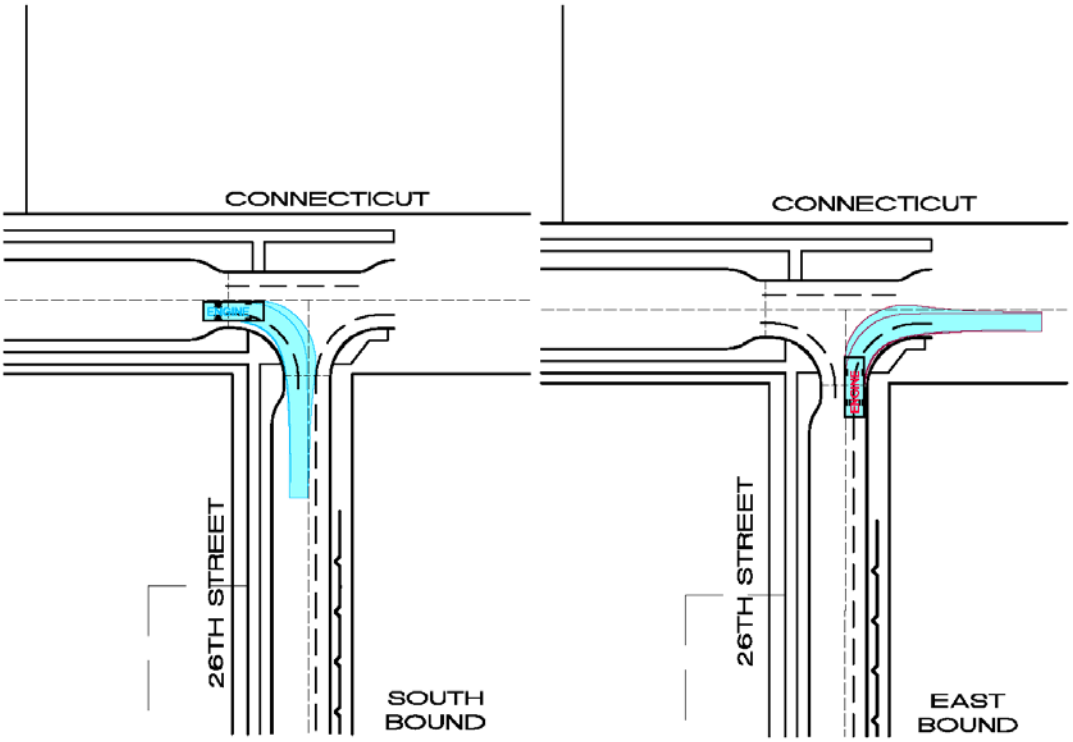

25TH STREET
MISSOURI
SOUTH BOUND
25TH STREET
MISSOURI
WEST BOUND


TEXAS
25TH STREET
SOUTH BOUND
TEXAS
25TH STREET
WEST BOUND


WISCONSIN
26TH STREET
ENGINE
SOUTH BOUND
WISCONSIN
26TH STREET
WEST BOUND

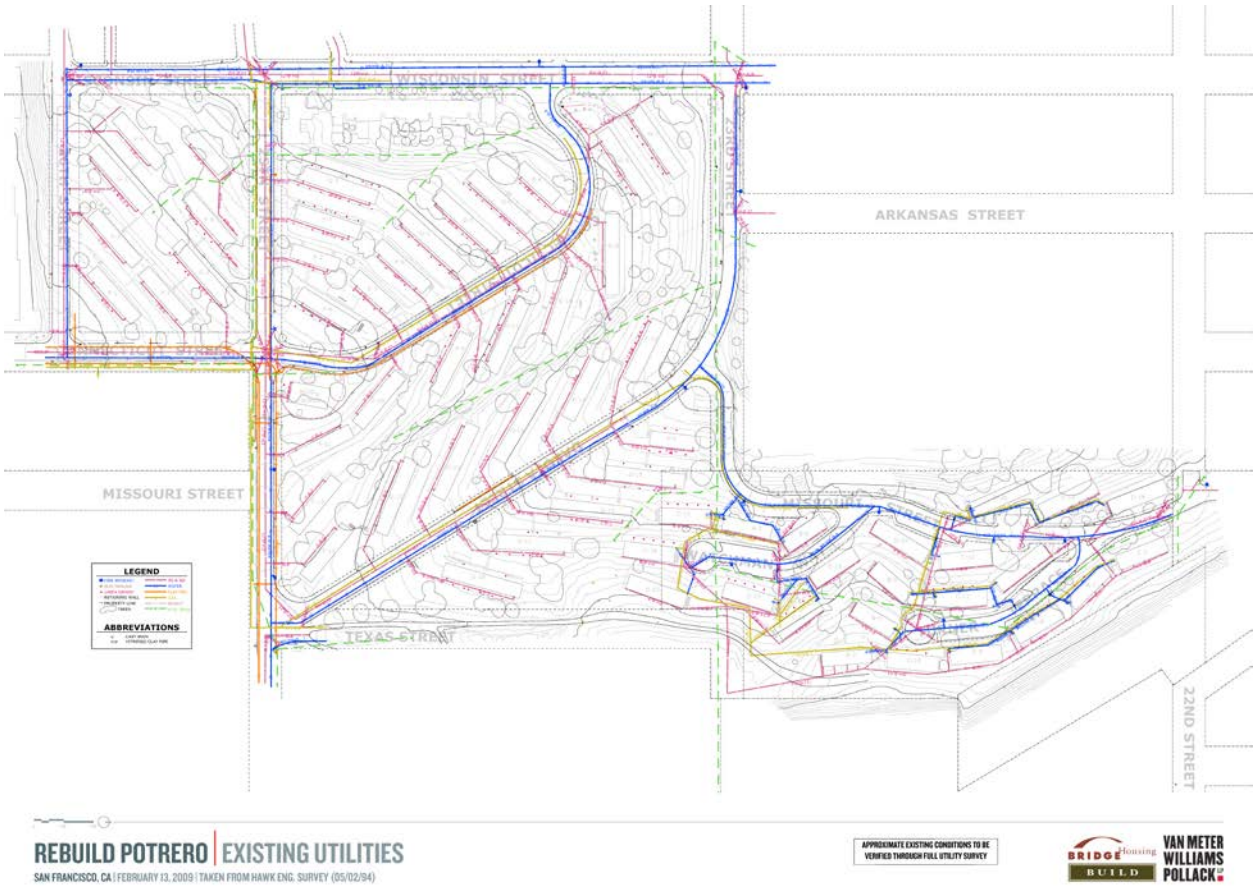

ARKANSAS
26TH STREET
SOUTH
BOUND


ARKANSAS
26TH STREET
WEST
BOUND



POTRERO MASTER
INFRASTRUCTURE PLAN

APPENDIX
2016 SFMTA FIRE ENGINE TURN MODELS



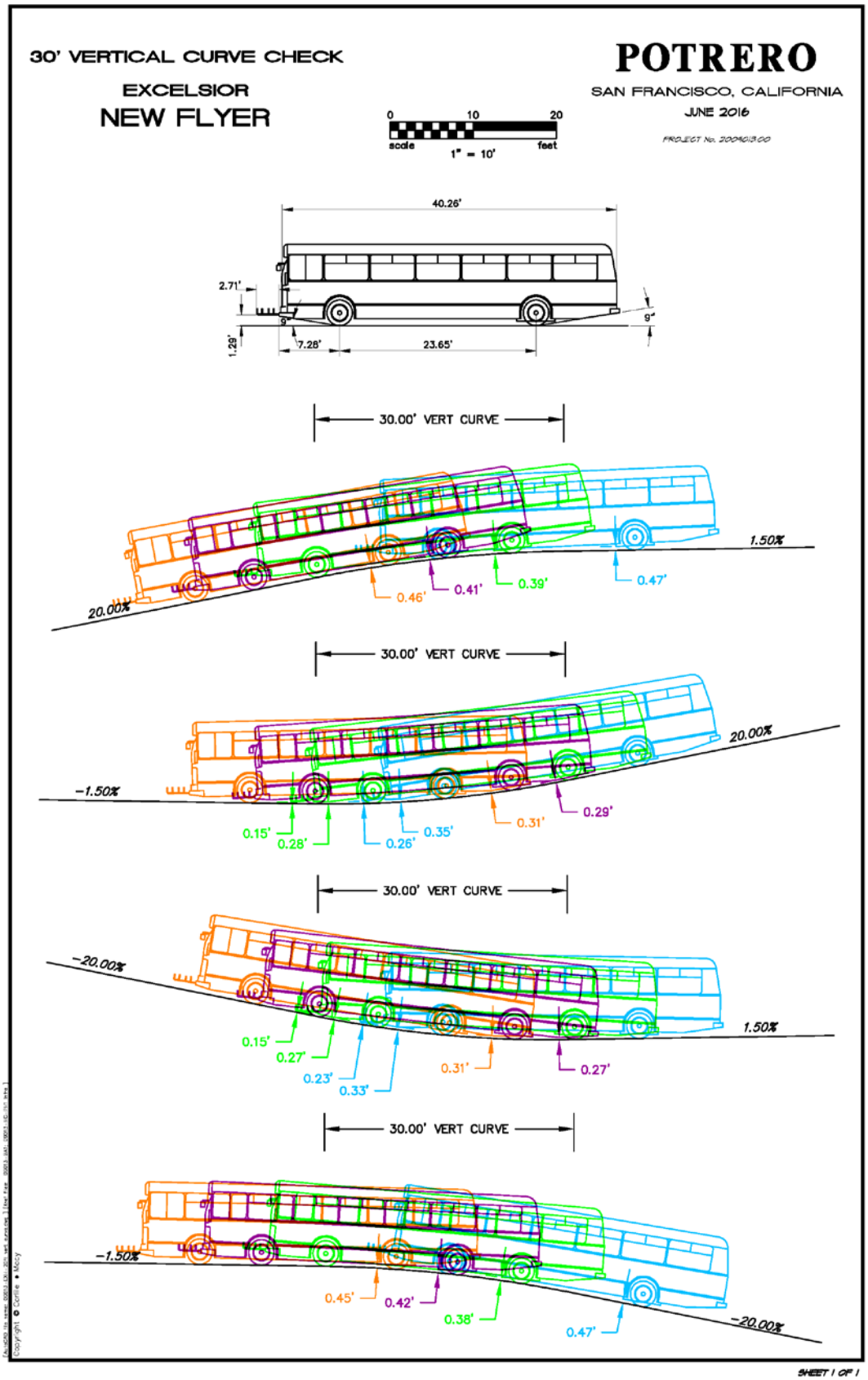
REBUILD POTRERO | EXISTING UTILITIES

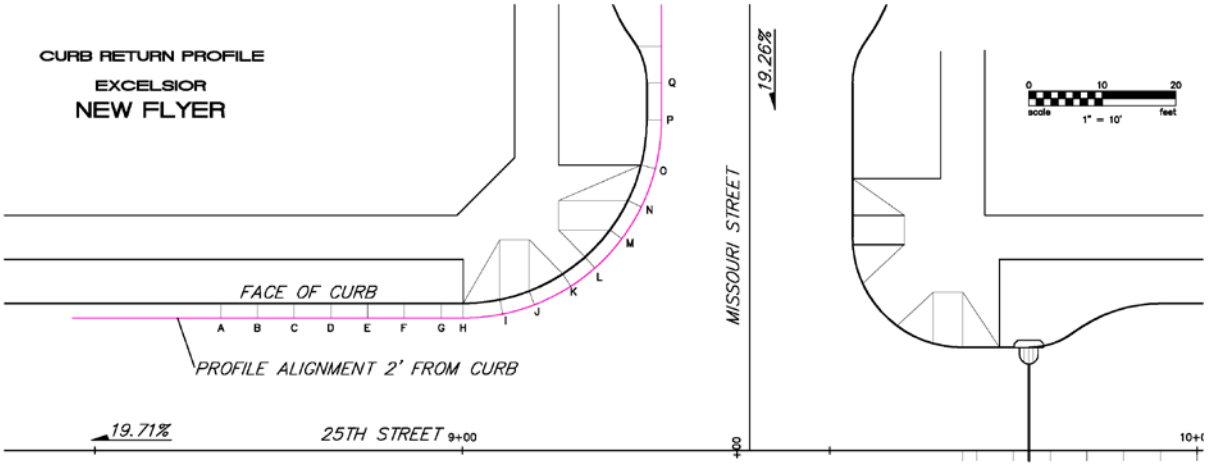
SAN FRANCISCO, CA | FEBRUARY 13, 2009 | TAKEN FROM HAWK ENG. SURVEY (05/02/94)

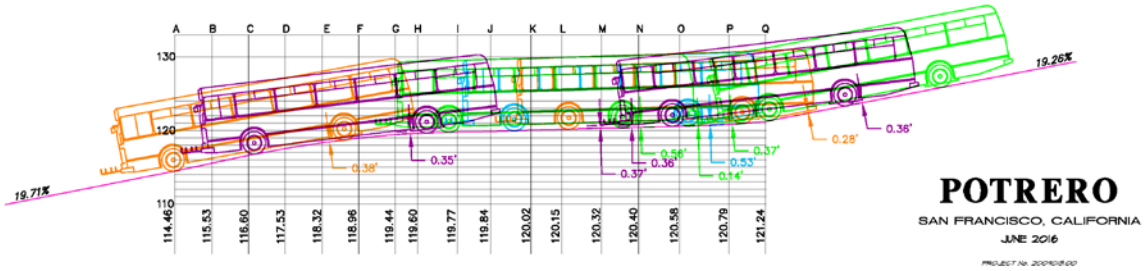
APPROXIMATE EXISTING CONDITIONS TO BE VERIFIED THROUGH FULL UTILITY SURVEY

BRIDGE housing BUILD

VAN METER WILLIAMS POLLACK


30' VERTICAL CURVE CHECK
EXCELSIOR
NEW FLYER
POTRERO
SAN FRANCISCO, CALIFORNIA
JUNE 2016
PROJECT No. 2004013.00
0
10
20
scale
feet
1" = 10'
40.26'
2.71'
1.29'
7.28'
23.65'
9"
30.00' VERT CURVE
20.00%
1.50%
0.46'
0.41'
0.39'
0.47'
30.00' VERT CURVE
-1.50%
20.00%
0.15'
0.28'
0.26'
0.35'
0.31'
0.29'
30.00' VERT CURVE
-20.00%
1.50%
0.15'
0.27'
0.23'
0.33'
0.31'
0.27'
30.00' VERT CURVE
-1.50%
-20.00%
0.45'
0.42'
0.38'
0.47'
SHEET 1 OF 1

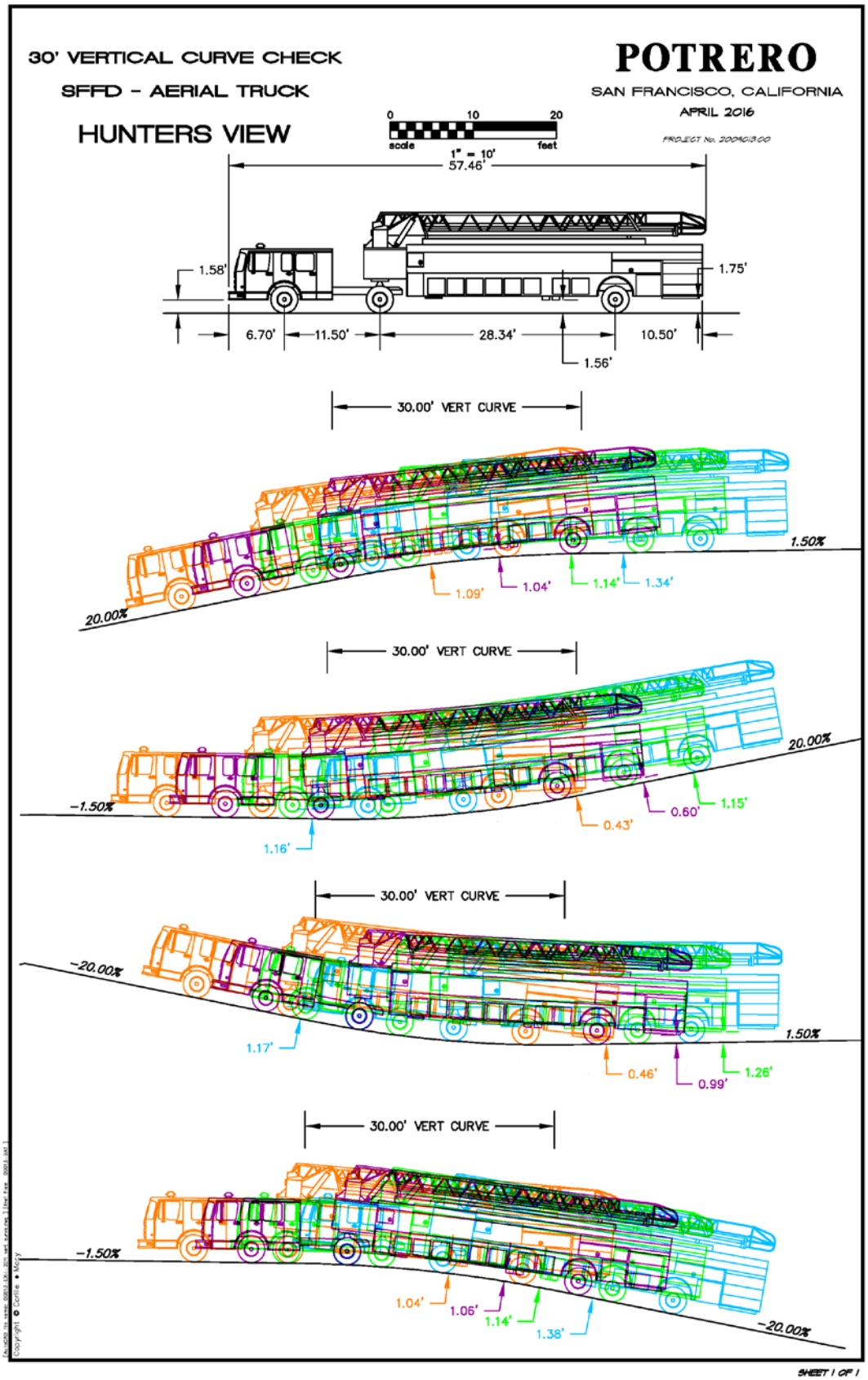


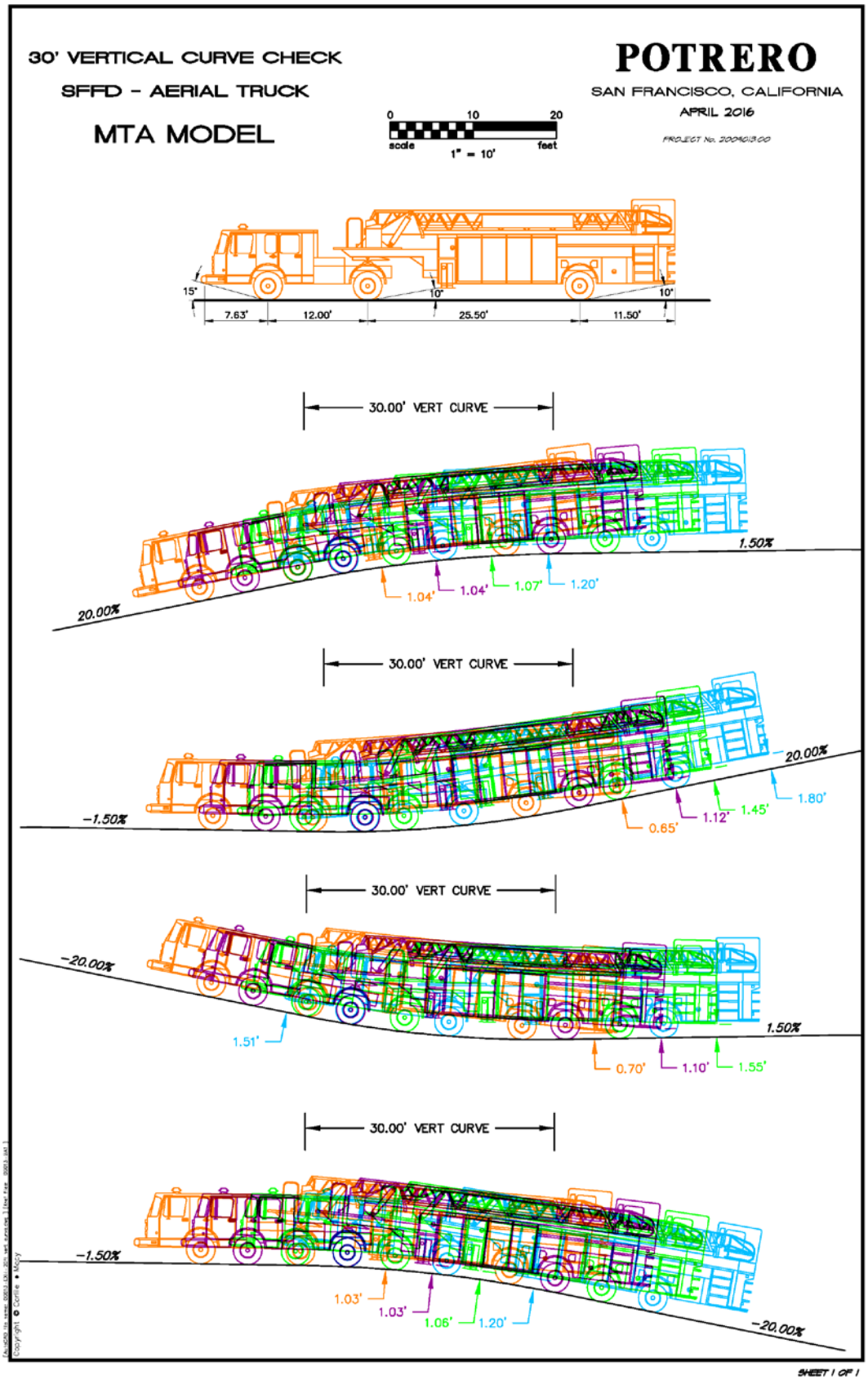


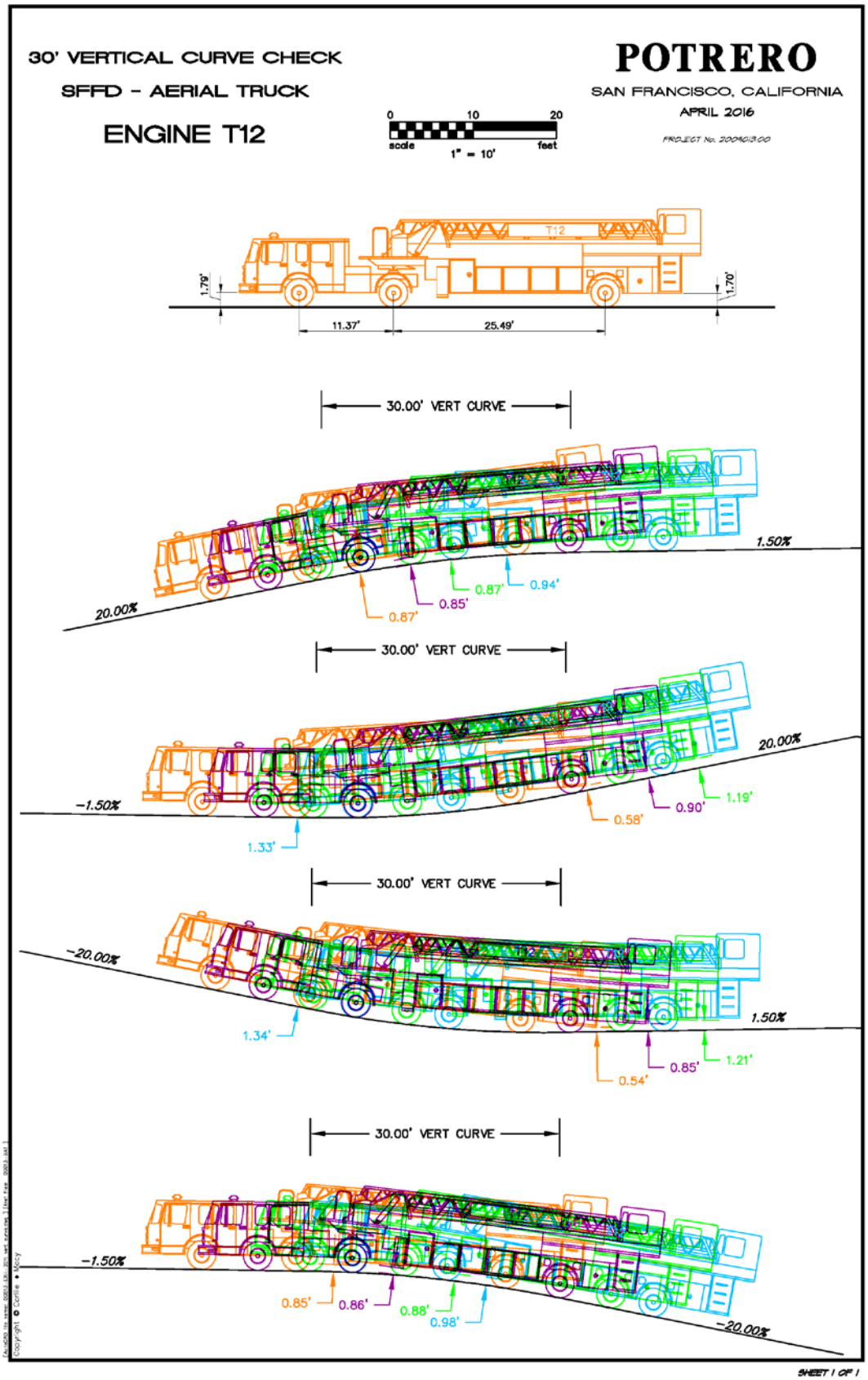
POTRERO

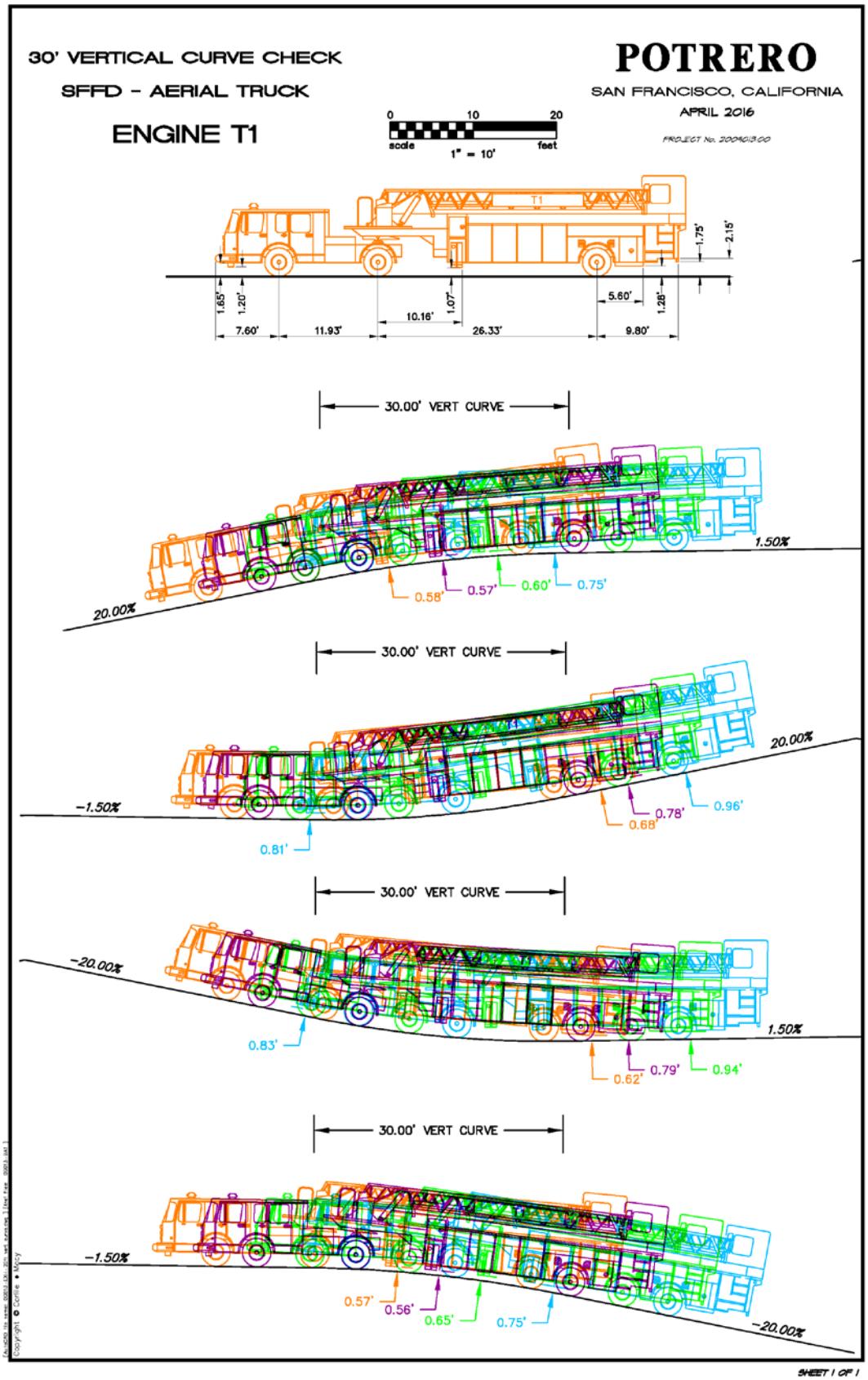
SAN FRANCISCO, CALIFORNIA

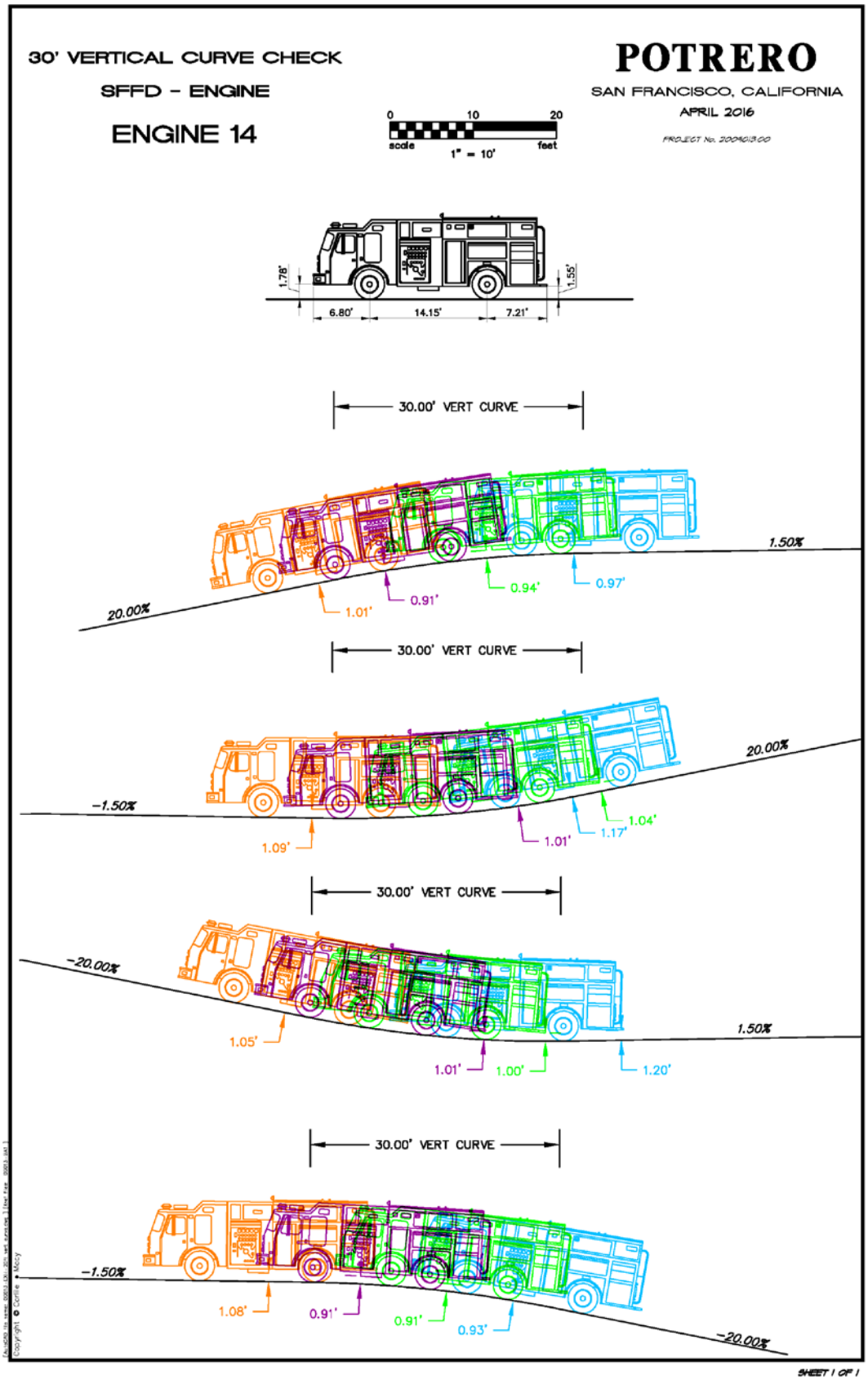
JUNE 2016

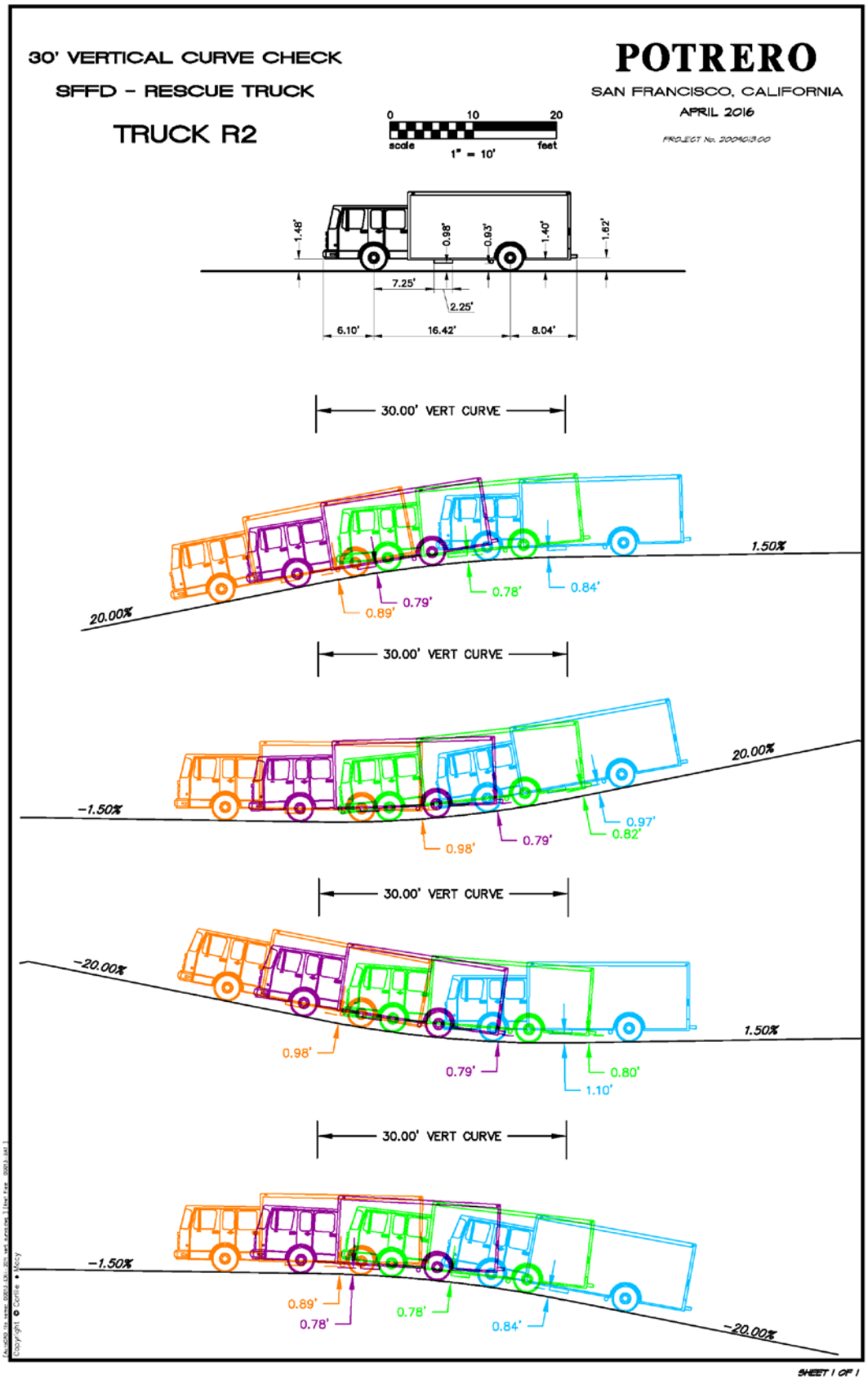

30' VERTICAL CURVE CHECK
SFFD - AERIAL TRUCK
HUNTERS VIEW
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
57.46'
1.58'
1.75'
6.70'
11.50'
28.34'
10.50'
1.56'
30.00' VERT CURVE
1.50%
20.00%
1.09'
1.04'
1.14'
1.34'
30.00' VERT CURVE
20.00%
-1.50%
0.43'
0.60'
1.15'
1.16'
30.00' VERT CURVE
-20.00%
1.50%
1.17'
0.46'
0.99'
1.26'
30.00' VERT CURVE
-1.50%
-20.00%
1.04'
1.06'
1.14'
1.38'
Copyright © Cordes • Macy
SHEET 1 OF 1

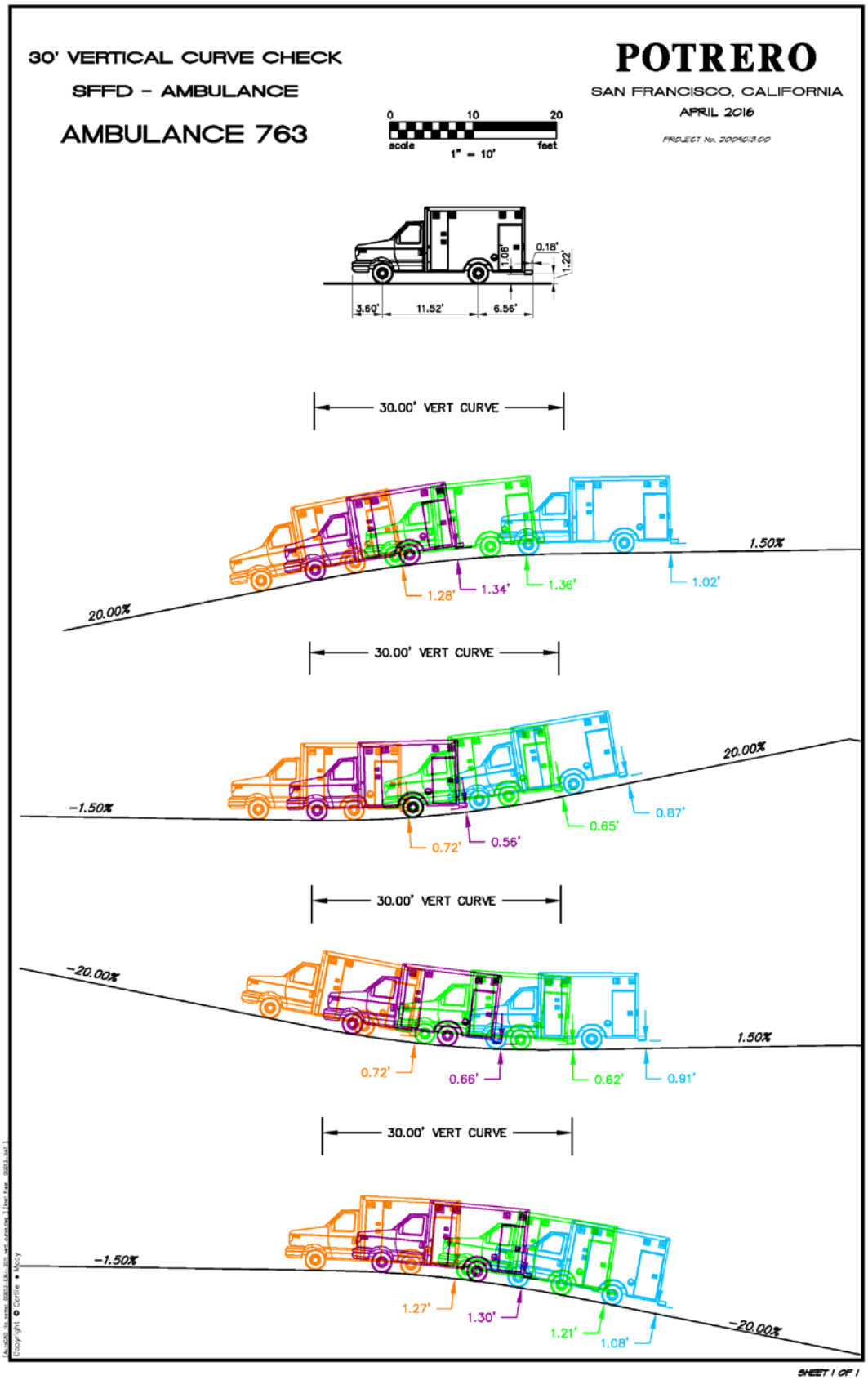

30' VERTICAL CURVE CHECK
SFFD - AERIAL TRUCK
MTA MODEL
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
15°
10°
10°
7.63'
12.00'
25.50'
11.50'
30.00' VERT CURVE
1.50%
20.00%
1.04'
1.04'
1.07'
1.20'
30.00' VERT CURVE
20.00%
-1.50%
0.65'
1.12'
1.45'
1.80'
30.00' VERT CURVE
-20.00%
1.50%
1.51'
0.70'
1.10'
1.55'
30.00' VERT CURVE
-1.50%
-20.00%
1.03'
1.03'
1.06'
1.20'
SHEET 1 OF 1


30' VERTICAL CURVE CHECK
SFFD - AERIAL TRUCK
ENGINE T12
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
T12
1.79'
1.70'
11.37'
25.49'
30.00' VERT CURVE
1.50%
20.00%
0.87'
0.85'
0.87'
0.94'
30.00' VERT CURVE
20.00%
-1.50%
1.33'
0.58'
0.90'
1.19'
30.00' VERT CURVE
-20.00%
1.50%
1.34'
0.54'
0.85'
1.21'
30.00' VERT CURVE
-1.50%
-20.00%
0.85'
0.86'
0.88'
0.98'
SHEET 1 OF 1


30' VERTICAL CURVE CHECK
SFFD - AERIAL TRUCK
ENGINE T1
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
T1
1.65'
1.20'
7.60'
11.93'
10.16'
1.07'
26.33'
5.60'
1.28'
9.80'
1.75'
2.15'
30.00' VERT CURVE
20.00%
1.50%
0.58'
0.57'
0.60'
0.75'
30.00' VERT CURVE
-1.50%
20.00%
0.81'
0.68'
0.78'
0.96'
30.00' VERT CURVE
-20.00%
1.50%
0.83'
0.62'
0.79'
0.94'
30.00' VERT CURVE
-1.50%
-20.00%
0.57'
0.56'
0.65'
0.75'
SHEET 1 OF 1


30' VERTICAL CURVE CHECK
SFFD - ENGINE
ENGINE 14
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
1.78'
1.55'
6.80'
14.15'
7.21'
30.00' VERT CURVE
20.00%
1.50%
1.01'
0.91'
0.94'
0.97'
30.00' VERT CURVE
-1.50%
20.00%
1.09'
1.01'
1.17'
1.04'
30.00' VERT CURVE
-20.00%
1.50%
1.05'
1.01'
1.00'
1.20'
30.00' VERT CURVE
-1.50%
-20.00%
1.08'
0.91'
0.91'
0.93'
Copyright © Cordille • Macy
SHEET 1 OF 1


30' VERTICAL CURVE CHECK
SFFD - RESCUE TRUCK
TRUCK R2
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
1.48'
0.98'
0.93'
1.40'
1.62'
7.25'
2.25'
6.10'
16.42'
8.04'
30.00' VERT CURVE
1.50%
20.00%
0.89'
0.79'
0.78'
0.84'
30.00' VERT CURVE
20.00%
-1.50%
0.98'
0.79'
0.97'
0.82'
30.00' VERT CURVE
-20.00%
1.50%
0.98'
0.79'
0.80'
1.10'
30.00' VERT CURVE
-1.50%
0.89'
0.78'
0.78'
0.84'
-20.00%
Copyright © Cordille • Macy
SHEET 1 OF 1


30' VERTICAL CURVE CHECK
SFFD – AMBULANCE
AMBULANCE 763
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
0.18'
1.06'
1.22'
3.60'
11.52'
6.56'
30.00' VERT CURVE
1.50%
20.00%
1.28'
1.34'
1.36'
1.02'
30.00' VERT CURVE
20.00%
-1.50%
0.72'
0.56'
0.65'
0.87'
30.00' VERT CURVE
-20.00%
1.50%
0.72'
0.66'
0.62'
0.91'
30.00' VERT CURVE
-1.50%
-20.00%
1.27'
1.30'
1.21'
1.08'
SHEET 1 OF 1

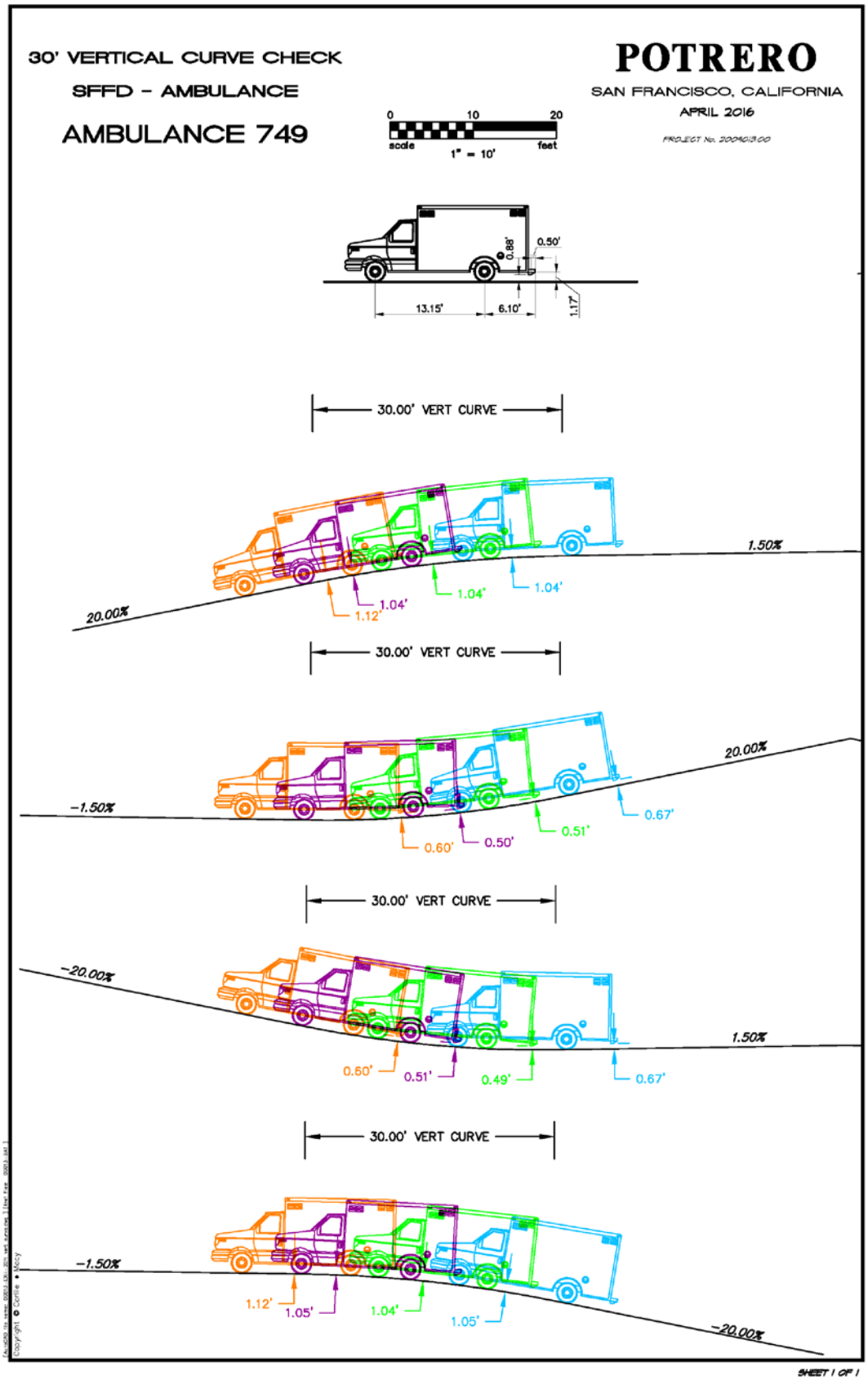

30' VERTICAL CURVE CHECK
SFFD – AMBULANCE
AMBULANCE 749
POTRERO
SAN FRANCISCO, CALIFORNIA
APRIL 2016
PROJECT No. 2004013.00
0 10 20
scale feet
1" = 10'
0.88'
0.50'
13.15'
6.10'
1.17'
30.00' VERT CURVE
1.50%
20.00%
1.12'
1.04'
1.04'
1.04'
30.00' VERT CURVE
20.00%
-1.50%
0.60'
0.50'
0.51'
0.67'
30.00' VERT CURVE
-20.00%
1.50%
0.60'
0.51'
0.49'
0.67'
30.00' VERT CURVE
-1.50%
-20.00%
1.12'
1.05'
1.04'
1.05'
SHEET 1 OF 1

FIGURE I.5 EXISTING UTILITIES

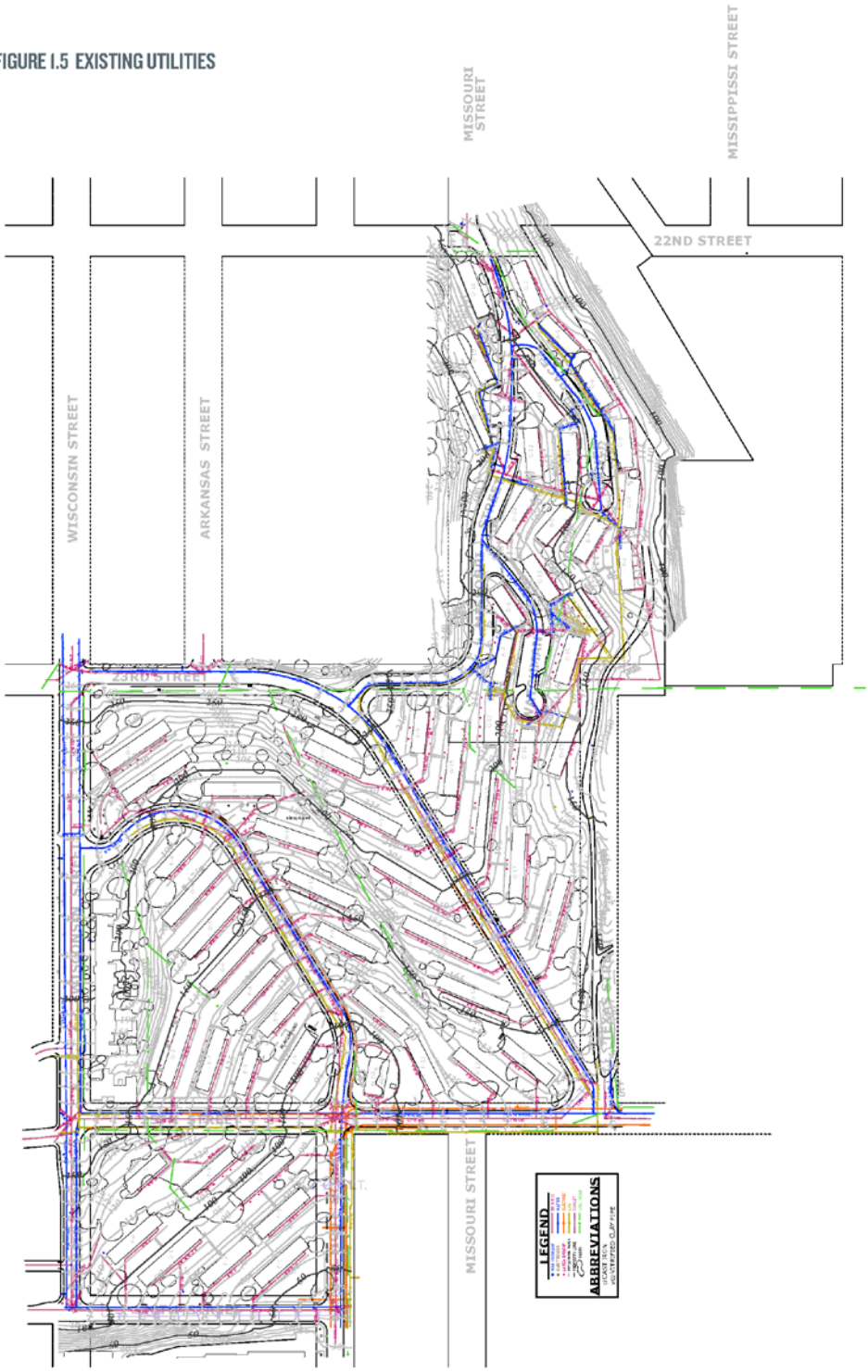


FIGURE 5.1 CONCEPTUAL GRADING PLAN

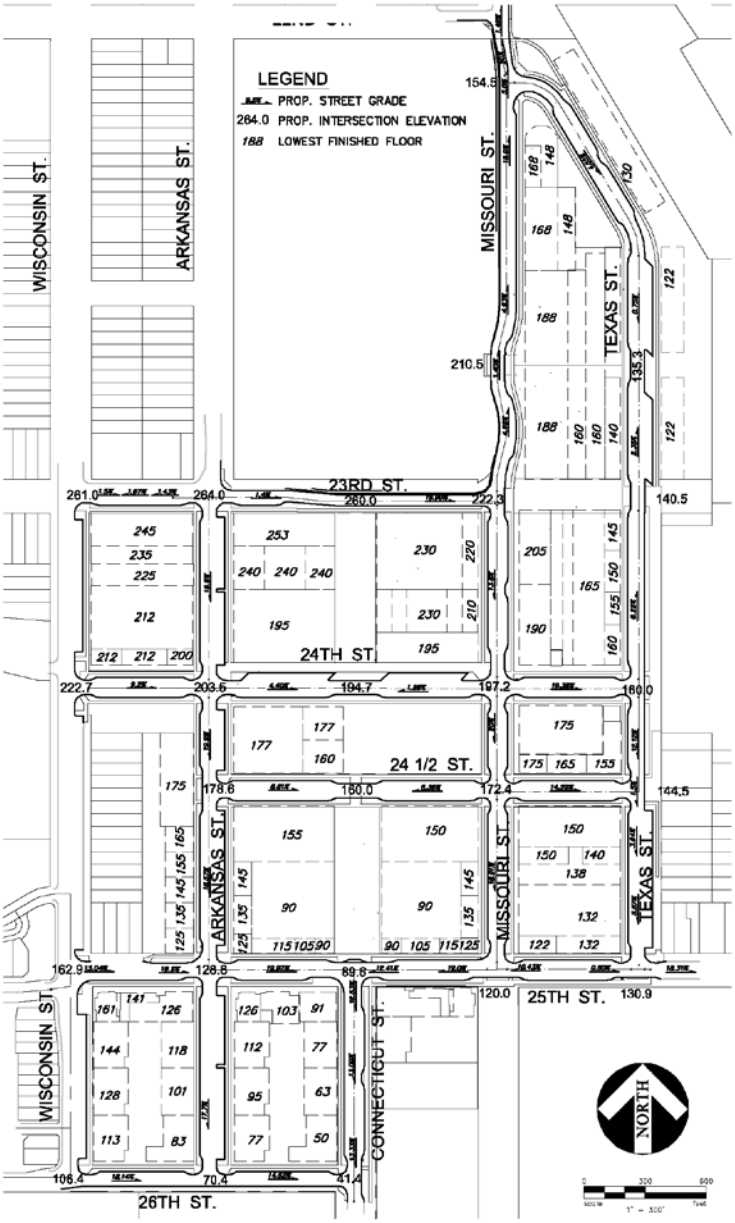


FIGURE 6.2 CONCEPTUAL SITE PLAN AND STREET LAYOUT

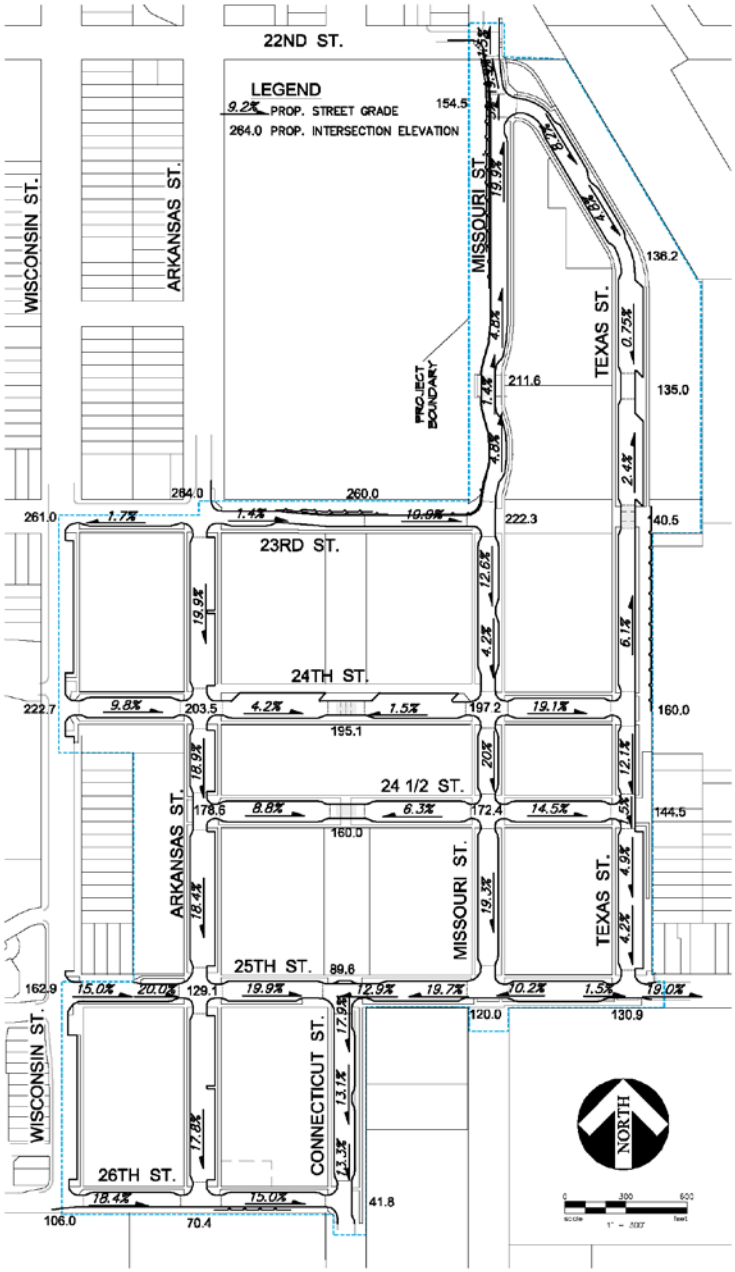


FIGURE 8.I CONCEPTUAL POTABLE WATER SYSTEM MAP

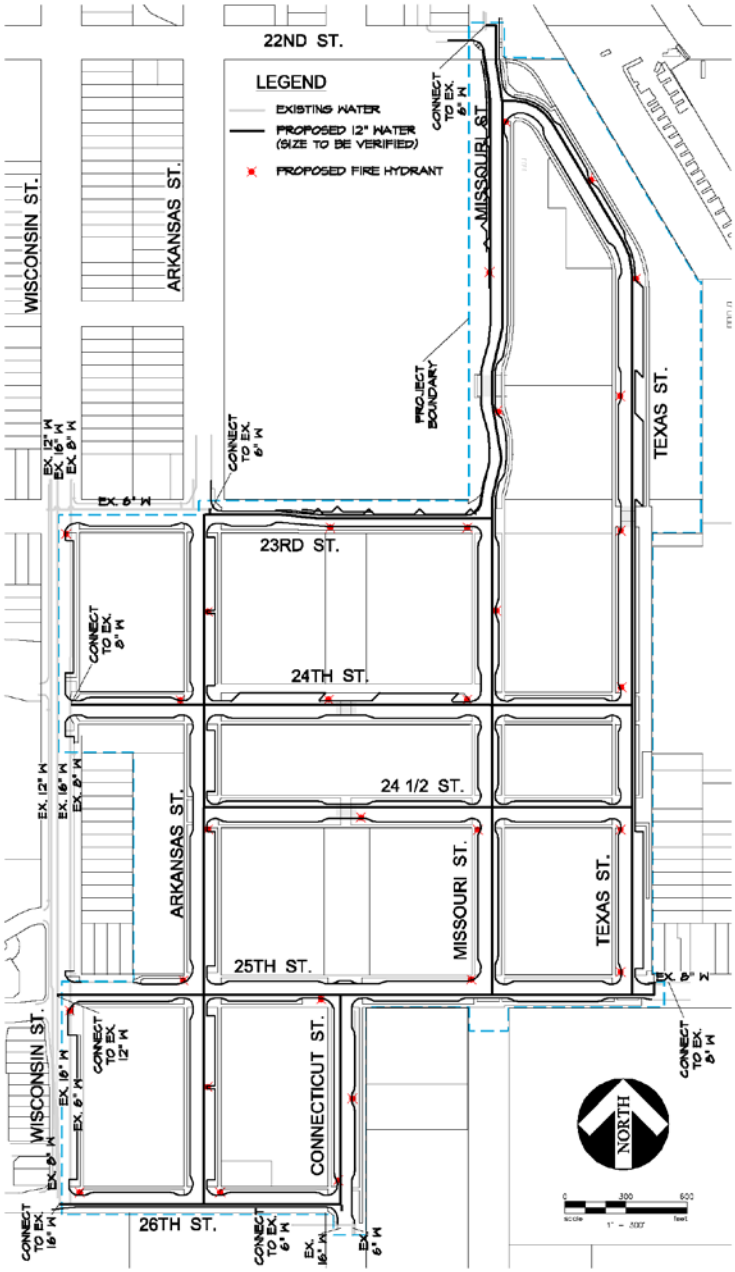


FIGURE 8.2 TYPICAL UTILITY SECTIONS WITHIN PUBLIC STREETS

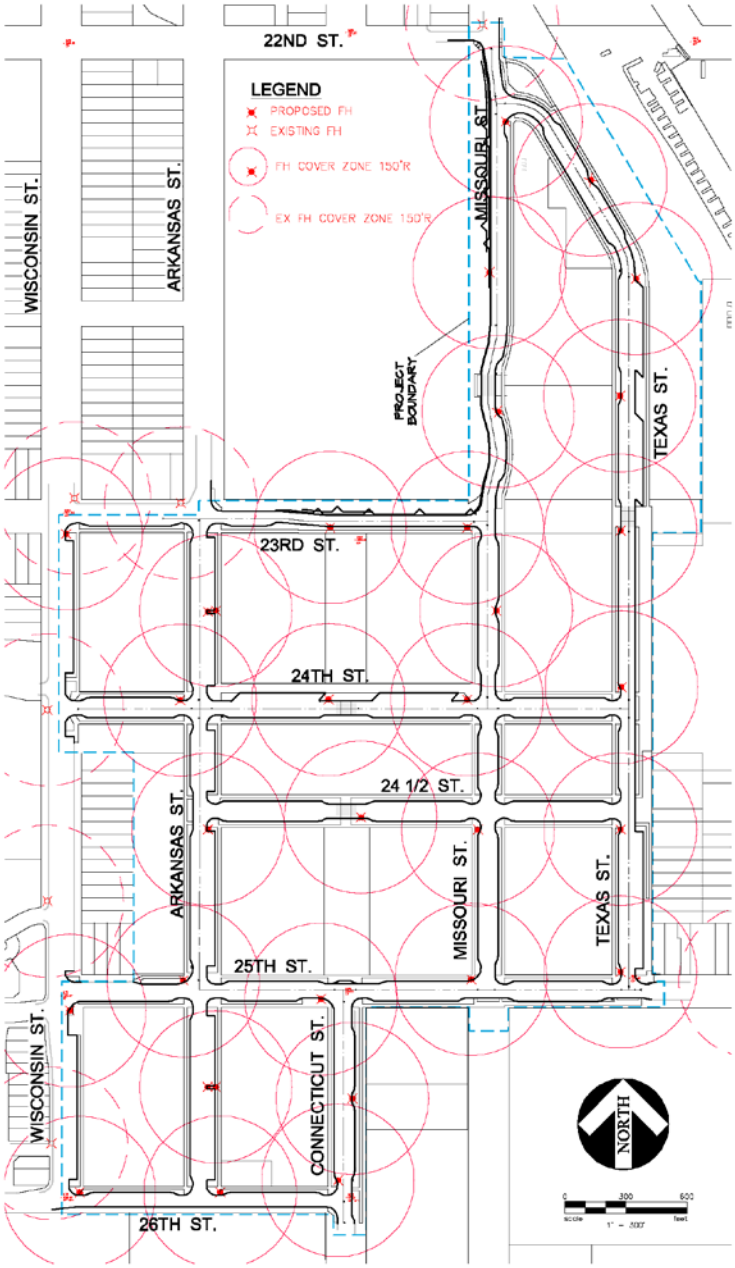


FIGURE 9.I CONCEPTUAL COMBINED SEWER SYSTEM

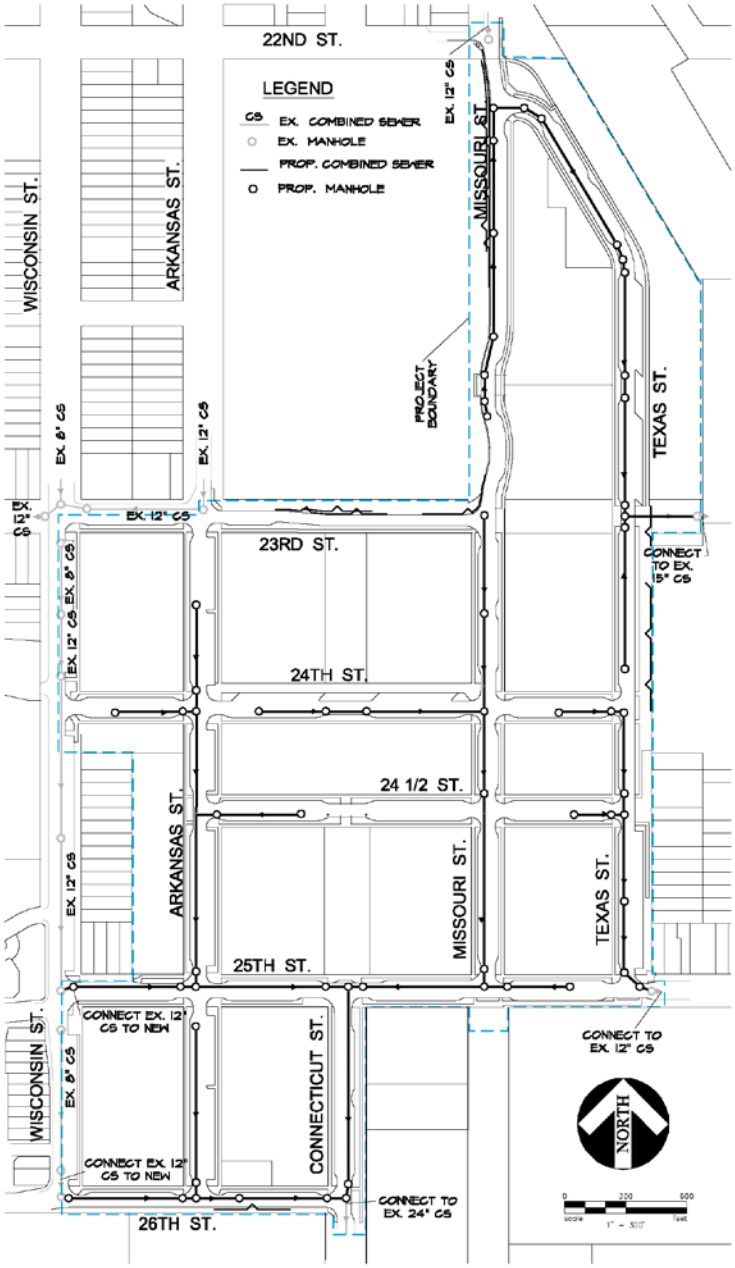


FIGURE 10.1 CONCEPTUAL AWSS SYSTEM DIAGRAM

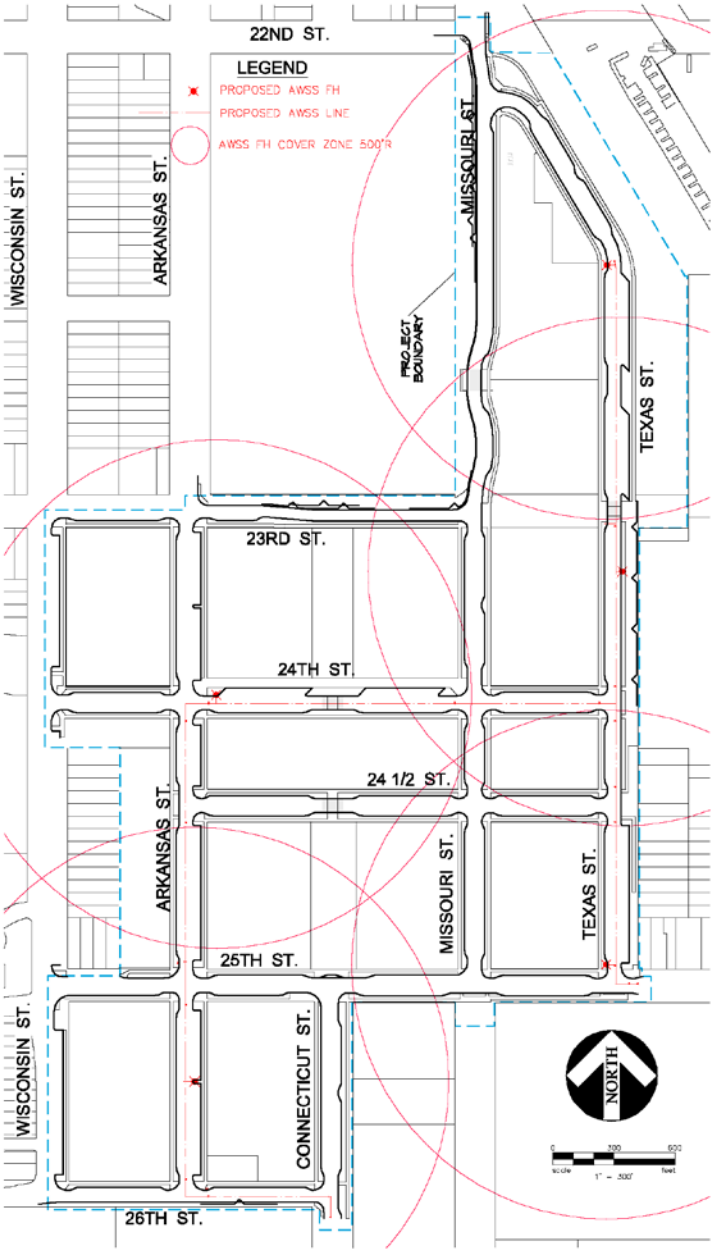


FIGURE II.I CONCEPTUAL STORMWATER MASTER PLAN

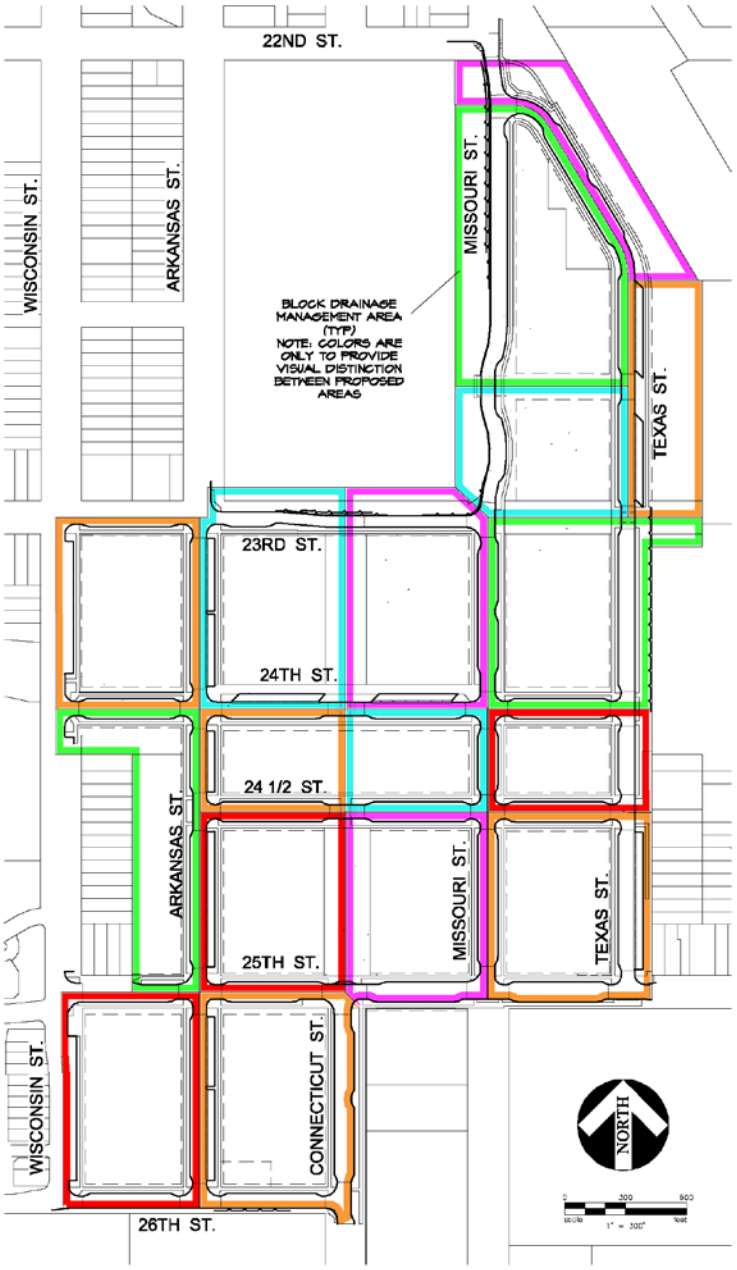


FIGURE I2.I CONCEPTUAL JOINT TRENCH PLAN