TROOST / PROSPECT

RIGHT-OF-WAY ENHANCEMENTS STUDY

Prospect Avenue 12th Street to 75th Street

Troost Avenue 30th Street to 42nd Street

Planning Sustainable Places Program

MARC MID-AMERICA REGIONAL COUNCIL

City Planning and Development
Kansas City, Missouri

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August 2018

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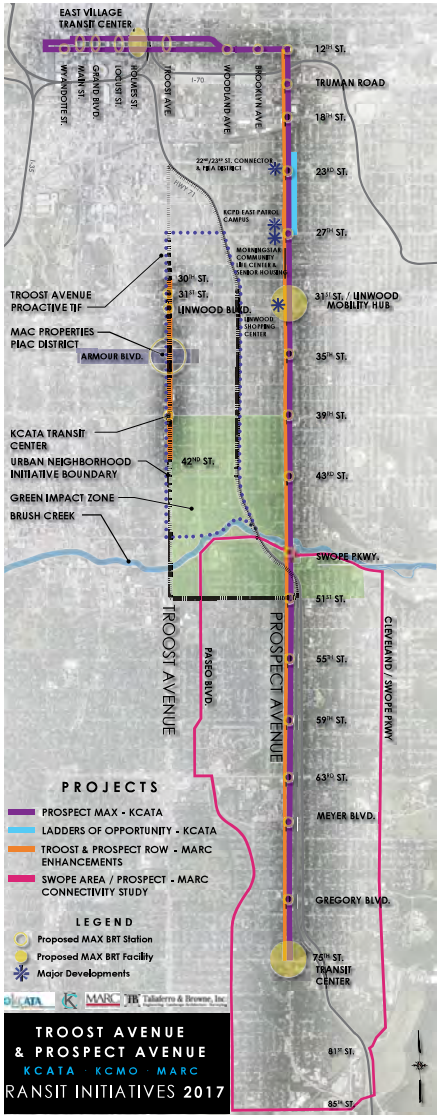


Troost Avenue & Prospect Avenue Transit Initiatives 2017

SECTION 1:

PROJECT DESCRIPTION AND GOALS

SECTION 1: PROJECT DESCRIPTION

1.1 Introduction

The City of Kansas City, Missouri requested and received a grant from Mid-America Regional Council's Planning Sustainable Places program in 2017 for Troost Avenue and Prospect Avenue Right-of-Way Enhancement Plans. These two urban corridors in Kansas City are important transit corridors, with a MAX Bus Rapid Transit line established on Troost Ave. and another one for Prospect Ave. that will begin construction in 2018.

The Troost Ave. project area is bordered by 30th St. on the north and 42nd St. on the south. It will serve as a connection to previous street improvements to the north at Beacon Hill as the next phase of improvements for Troost Avenue following the adoption of the Troost Corridor Overlay District in July of 2015 by Ordinance No. 150581, and to the south by previously recommended streetscape plans south of 43rd St.

The Prospect Ave. project area is bounded by 12th St. on the north and 75th St. on the south and is directly tied into the ongoing plans and design for the new MAX line and streetscape improvements which include sidewalk and curb replacements.

The ultimate goal for both the Troost and Prospect corridors is to create streets that are safe, comfortable, and inviting for users of all modes of travel. These streets are important to the urban fabric of Kansas City for many reasons:

- they connect multiple neighborhoods and provide access to commercial and institutional uses;
- they are important transit corridors for both local and high-frequency MAX bus service;
- they have the potential for economic development through greater residential and commercial development.

These corridors are poised for transformation. They are ready to become places where people of all ages and abilities can safely connect to goods and services by

This plan provides policy recommendations for the City within the public right-of-way to incorporate safe multi-modal transportation guidelines and a conceptual design for both streets that can be implemented in the near future at limited expense. The concepts described in this plan should serve as a planning framework for City departments as well as the Kansas City Area Transportation Authority, developers, property owners and neighbors for street improvements. As funds become available, the concepts will need to be engineered and designed in detail for construction purposes. This plan is meant to preserve and maintain the urban fabric of each of the two corridors while promoting quality uses and redevelopment. Each plan identifies solutions that do not require reconstruction, relocation of any utilities or changes in current bus stops and/or MAX stations.

The multi-modal emphasis required the planning team to evaluate the key interconnecting needs of transit vehicles, pedestrians, automobiles, street parking with the addition of protected bikeways that can connect with the City's overall Bike Plan. Safety, reduction of conflicts between modes and sensitivity to all users and the neighborhoods surrounding these two key streets became the criteria for measuring the success of design concepts.

MULTI-MODAL STREETS. . .

ARE SAFE FOR ALL USERS AND ALL MODES OF TRAVEL

SECTION 2:

BACKGROUND & EXISTING CONDITIONS

SECTION 2: BACKGROUND & EXISTING CONDITIONS

2.1 Troost Avenue

Troost Avenue is a 13-mile major arterial in the Kansas City street system that has historically served as a primary public transit route and led to the development of numerous streetcar suburbs around the turn of the 20th century. Troost maintained a healthy retail environment that not only served neighborhood needs, but in some cases also attracted regional markets such as department stores, large dairy and baking facilities and a variety of faith-based organizations. It still provides the highest level of transit ridership in the city. The original electric streetcar system was dismantled in the late 1950's and buses replaced the streetcars, removing the "fixed" guideway system that helps to stabilize economic development. This occurred at the same time that red-lining and block-busting tactics were used to destabilize east side neighborhoods after the landmark Shelley vs. Kramer Supreme Court decision that outlawed housing discrimination.

Troost Ave. has suffered a long history of being identified as Kansas City's racial dividing line as housing and neighborhood needs were neglected east of Troost. In the last 20 years however, significant strides have been made through partnerships between neighborhoods, business owners, the City and non-profit organizations who have come together to reinvest and reinvigorate the corridor.

2.2 Existing Physical Conditions (Troost Avenue)

Roadway

Troost is constrained by long established urban development with no specific (roadway) cross-section according to the KCMO Major Street Plan. Right of way widths and pavement widths vary along the corridor, but within the extents of this project (30th to 43rd) St. the right-of-way is approximately 80' and pavement widths range from 52' to 56' depending on the roadway section. Although actual lane widths vary, between 30th and 34th Sts., the roadway is striped as two travel lanes, a center turn lane & parking on both sides. See #1 below. Between 34th and 43rd, the roadway is striped as four travel lanes with intermittent on-street parking, #2 below. (Figure 2.1)

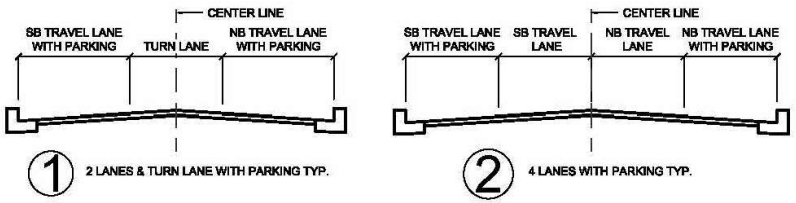


FIG. 2.1 **Troost Avenue Existing Conditions Map_Fall 2017**

Transit and Pedestrian

The Troost MAX bus rapid transit system is a significant presence in the project area with a transit plaza at 31st St. and MAX stations at Linwood Blvd., Armour Blvd., and 39th St. Completed in 2008, Troost MAX has contributed to both the physical and economic health of the corridor. Infrastructure improvements extending north and south of each MAX station included new ADA ramps, sidewalks, curbs and curb extensions with bioretention gardens (Figures 2.1-3). However there are still long stretches of deteriorated sidewalk and curb between 30th and 31st, and between 32nd Ter. and 39th St. These are identified in orange on Figure 2.3 below. South of 39th St. improvements were made as part of the Green Impact Zone project and the sidewalks and curbs are in good condition.

ADA Compliance

The non ADA compliant intersections are noted with red circles on Figure 2.2. These locations are non-MAX intersections or fall outside the Green Impact Zone.

FIG. 2.3 Troost Existing Conditions Map Legend

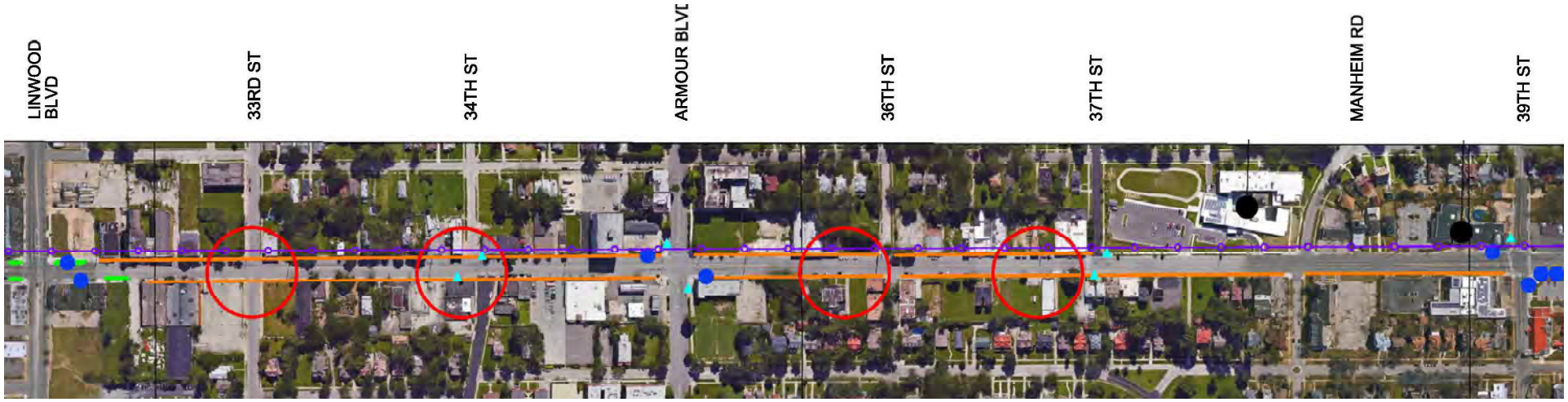


FIG. 2.2 Troost Avenue Existing Conditions Map_Enlargement

Above Ground Utilities

Troost Avenue is a significant utility corridor. While a survey of below ground utilities is not included in this report, overhead utilities in this segment include the KCPL High Line Transmission lines along the east side of the street and street lighting is located on the west side. The street lights between 30th St. and Armour Blvd. consist of newer, shoebox fixtures on metal poles, and between Armour Blvd. and 43rd St. the street lights are older, cobra heads on wooden poles.

Street Trees and Landscape

Tree lawn (greenway) is intermittent with pavement extending to the back of curb (See Figure 2.4). With the exception of specific location where new street trees have been planted as part of sidewalk and curb replacements, much of the tree canopy along Troost has outlived it's expected lifetime and is in decline. Tree roots have caused sidewalks to heave in some places and trees that have grown into overhead utilities or suffered storm damage are in poor condition.

Locations of existing curb extensions with bioretention facilities that filter runoff from the roadway are shown in green on Figures 2.1-3. The gardens are maintained by KCMO Water Services Department and are in good condition. The small storm facilities at the MAX stations, however, are in very poor condition and in need of attention.

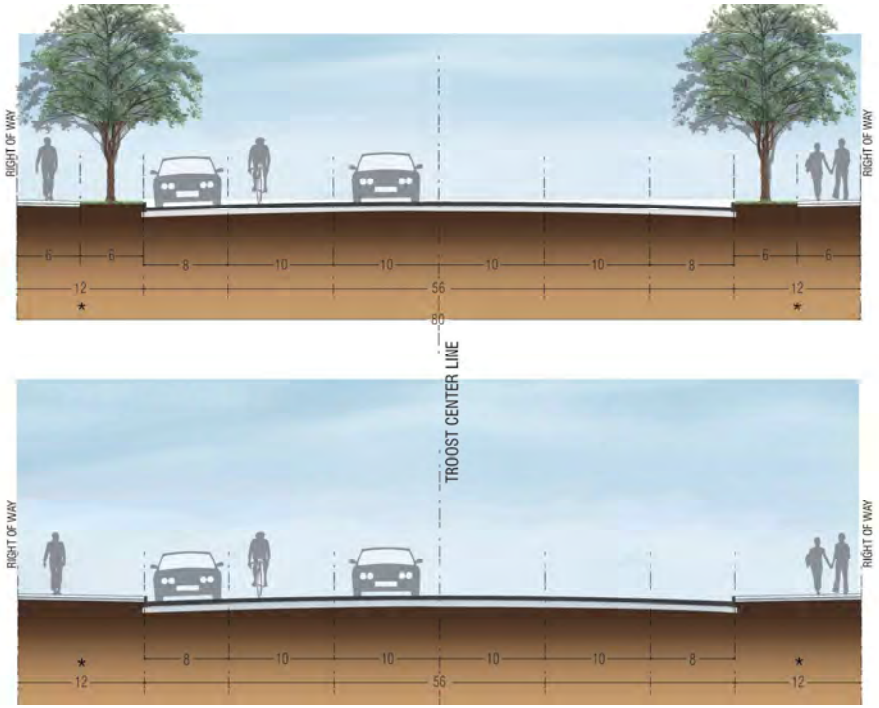


FIG. 2.4 Troost Typical Section 34th to 43rd St._With & Without Trees and Tree Lawn


30th St. - 31st St.


31st - Linwood Blvd.


32nd Ter.


33rd St.


34th St.


38th St.

2.3 Prospect Avenue

Prospect Avenue is a long north-south arterial street with a mixture of commercial property residential neighborhoods and not for profit organizations such as schools, faith-based institutions and a branch of the KCMO Public Library. The study area stretches from 12th St. on the north to 75th St. on the south. Several major planning efforts have been completed for the area, including the City's Heart of the City Area Plan, Neighborhood Self-Assessment Plans and the community planning approach for the new MAX Bus Rapid Transit Line that is due to begin operations Fall of 2019.

Most of the land around Prospect Avenue was farmland, with access to the Santa Fe Trail until it was annexed into the Kansas City, MO. city limits in 1867. The city continued to grow south with continued annexations through 1957. The area includes the historic 18th & Vine District and early public investments of the city's old municipal stadium, public works building, street maintenance facility and a prison. The area also includes Pioneer Community College, the historic Santa Fe Place neighborhood, the Linwood Multi-Purpose FOCUS Center, the Linwood Shopping Center, historic Lincoln High School, and the recently completed KCMO Police Station at 27th & Prospect.

The city's development of its Parks and Boulevard Plan in 1893 resulted in numerous amenities in the area, including Linwood Boulevard, Benton Boulevard, Emanuel Cleaver II Boulevard and Meyer Boulevard with numerous public parks and greenways. The area around Prospect has suffered disinvestment and blight beginning in the 1950's and 1960's as a result of real estate practice of red-lining and block-busting, federally subsidized suburban growth, neglect of public schools and loss of population, among many other factors. The area has a long history of civil rights activity, community organizing and broad ethnic diversity.

As part of this study, extensive field inventories were assembled of the existing above ground infrastructure within each project area. For Prospect this mapping is shown in Figures 2.6 and 2.7 on the following pages. This Existing Conditions Map, Figure 2.7 also includes sidewalk and curb replacements, and curb extensions that are to be constructed as part of the Prospect MAX Streetscape in 2018.

2.4 Existing Physical Conditions (Prospect Avenue)

Roadway

Much like Troost, Prospect is constrained by long established urban development with no specific (roadway) cross-section according to the KCMO Major Street Plan. As well, the right of way is approximately 80 feet and pavement widths and roadway sections vary along this 7.5 mile segment of the corridor. Also, like Troost, the roadway striping is inconsistent, but is generally striped with either: two travel lanes, a center turn lane & parking on both sides; or four travel lanes with intermittent on-street parking. These conditions are shows in Figures 2.5 and 2.6.

Curb extensions have recently been constructed at the 23rd and 27th St. intersections. No striping is currently provided for bicycles.

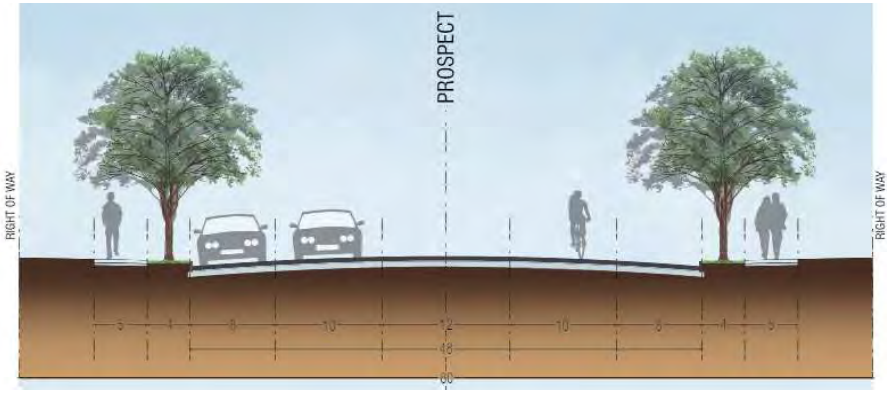


FIG. 2.5 Prospect Typical Section 38th to 63rd_Midtown

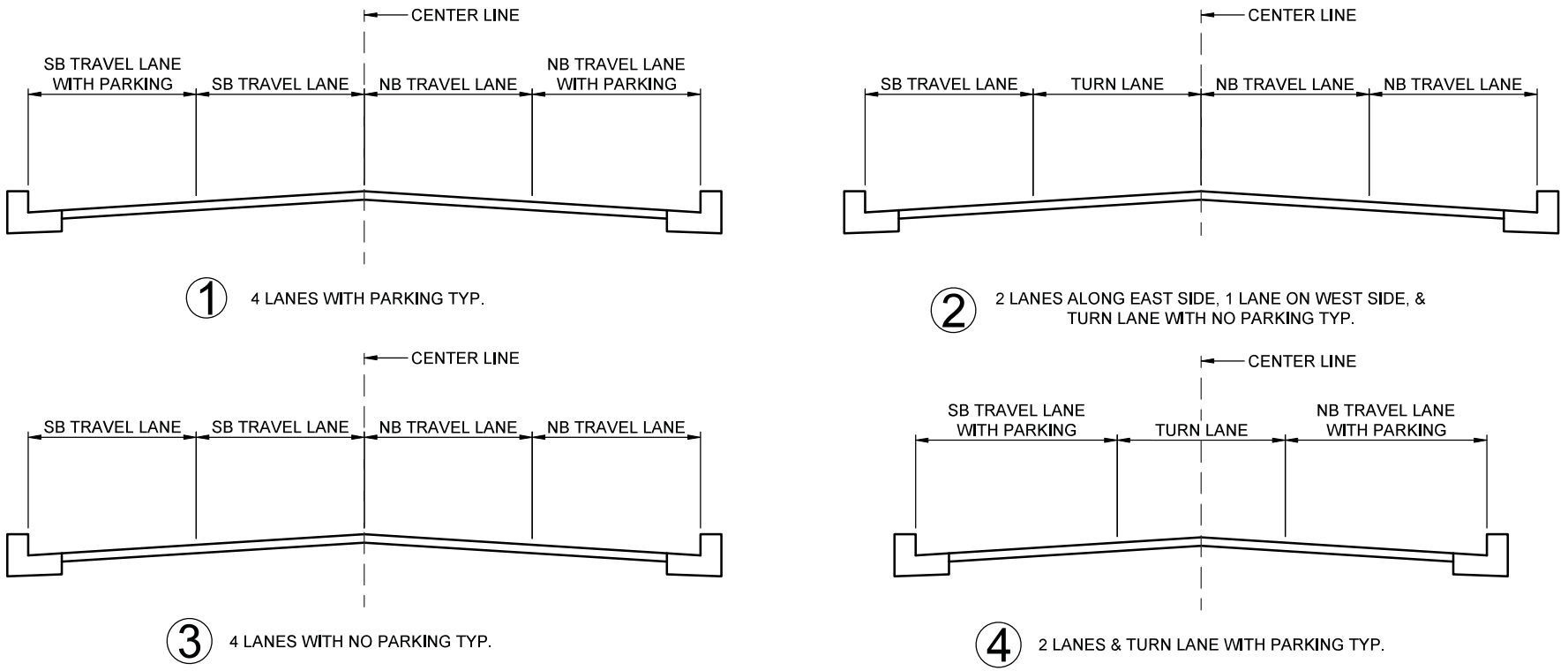


FIG. 2.6 **Prospect Typical Sections**

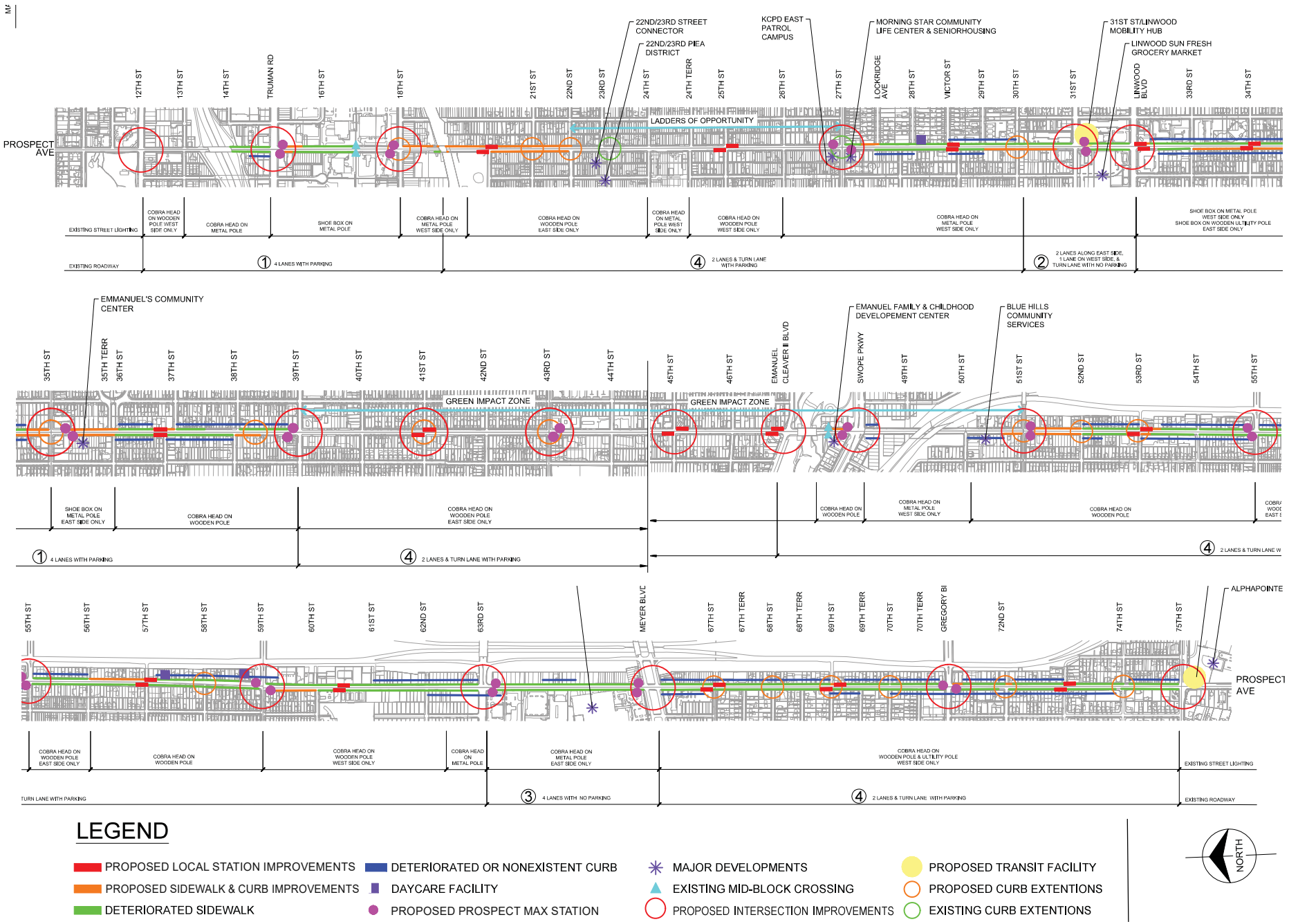


FIG. 2.7 **Prospect Avenue Existing Conditions Map 12th St. - 75th St. Fall 2017**

Transit / Pedestrian / ADA

Currently, the KCATA operates local bus service on Prospect. However, the City's third bus rapid transit line, Prospect MAX, has been designed and is scheduled to open in Fall, 2019. Much like Main Street MAX and Troost MAX, the new system will contribute to both the physical and economic health of the Prospect corridor. The locations of the future MAX stations (approximately 4 block intervals) are shown on the map in Figure 2.7. Some of these will have level boarding and are shown in purple. Also shown are local bus stops that will be improved as part of the Prospect MAX, and two new transit facilities (mobility hubs) to be constructed at 31st and 75th Streets. Other elements shown include the location for future Prospect MAX intersection improvement as well as recent new developments within the project area.

Long stretches of deteriorated or missing, sidewalks and curbs and ADA ramps signal a corridor long overlooked. These conditions (shown in Figure 2.8) are mainly north and south of the Green Impact Zone between 39th St. to 51st St. and fall outside of the recent Ladders of Opportunity improvement between 22nd and 27th Sts. where sidewalks and curbs were recently replaced. However, these conditions pose safety hazards and severe barriers for pedestrians of all abilities to access transit and basic services. Many of these intersections will be addressed with the Prospect MAX improvements. However, recommendations for additional intersection improvements are discussed in Section 4.

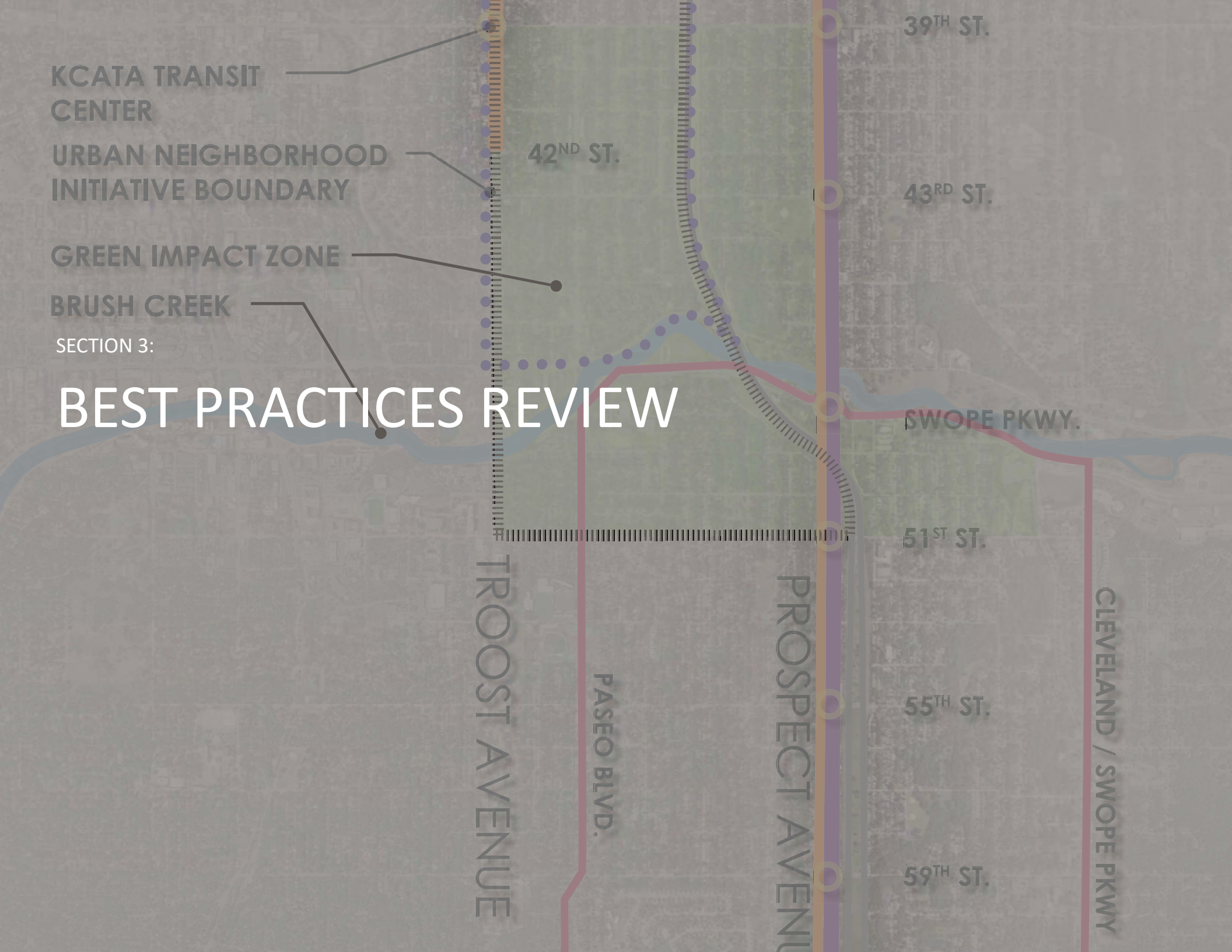
Street Trees and Landscape

Tree lawn (greenway) is intermittent with pavement extending to the back of curb in many areas. With the exception of specific locations where new street trees have been planted as part of sidewalk and curb replacements, much of the tree canopy along Prospect has outlived it's expected lifetime and is in decline. Tree roots have caused sidewalks to heave in some places and trees that have grown into overhead utilities or suffered storm damage or are in poor condition.

Streetlighting

The street lights along Prospect are inconsistent ranging from showbox heads on metal poles, to cobra heads on metal poles, to cobra heads on wooden poles. Generally, street lights are located on the west side of the street. These conditions are shown in Figure 2.7.

FIG. 2.8 **Pedestrian / ADA Barriers**



SECTION 3:

BEST PRACTICES REVIEW

SECTION 3: BEST PRACTICES REVIEW

3.1 Best Practices in Multimodal Design

This section of the report provides a brief overview of the key design elements and best practices that can be used to support and encourage multimodalism along the Troost and Prospect corridors. The specific short-term and long-term recommendations for the corridor are found later in the report.

To provide a safe, comfortable, and inviting environment for all modes, the design of the street, at a minimum, should do the following:

- Address speed and safety concerns
- Balance the needs of pedestrians, transit, bicyclists, motor vehicles, and freight
- Ensure connectivity and access
- Support community character and land uses

Safe Speeds (lane widths, road diet)

A key component of multimodal design is creating an environment where users of all modes can feel comfortable. Streets should operate at vehicle speeds that are comfortable, not only for motor vehicles, but also for pedestrians and bicyclists of various ages and abilities. The goal of designing for safe speeds is to create an environment that encourages speeds appropriate for the street type and context. Street designs should aim to limit excessive speeding, and target design speeds should be appropriate for the street type and context of surrounding land uses. Where excessive speeds occur, traffic calming measures such as curb extensions and narrowing lanes should be considered in conjunction with enhanced law enforcement to reduce speeds and improve the safety and comfort for all users. Lowering posted speed limits without addressing street design generally does not reduce speeding and, in turn, does not improve safety.

Pedestrians and bicyclists are particularly vulnerable in the event of a crash with a motor vehicle. The severity of a pedestrian injury in the event of a crash is directly related to the speed of the vehicle at the point of impact. For example, a pedestrian who is hit by a motor vehicle traveling at 20 mph has a 13% likelihood of death or severe injury, whereas a pedestrian hit by a motor vehicle traveling at 40 mph has a 73% likelihood of death or severe injury.

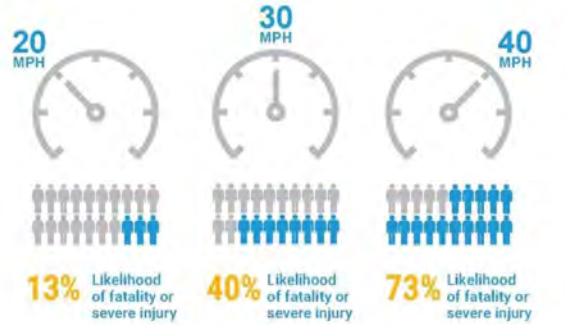


FIG. 3.1 Likelihood of Fatality

Medians

Raised medians provide space to locate pedestrian safety features and traffic control devices, amenities, landscaping and stormwater management.

Pedestrian Refuges

Median refuge islands are protected spaces placed in the center of the street to facilitate bicycle and pedestrian crossings. Crossings of two-way streets are facilitated by allowing bicyclists and pedestrians to navigate only one direction of traffic at a time.

High-Quality Sidewalks

Sidewalks play a critical role in the character, function, enjoyment, and accessibility of neighborhoods, commercial corridors, and other community destinations. Sidewalks are the place typically reserved for pedestrians within the public right-of-way, adjacent to property lines, or the building face. In addition to providing vertical and/or horizontal separation between vehicles and pedestrians, the spaces between sidewalks and roadways also accommodate street trees and other planting, stormwater infrastructure, street lights, and bicycle racks. Providing high quality sidewalks that are at a minimum 5 feet wide in residential areas and provide a minimum 8-10 foot clear zone in commercial or highly dense areas is critical to creating a safe and inviting space for pedestrians and in supporting transit access. Whenever feasible, a grass or landscaped buffer should be provided between the sidewalk and the curb.

Curb Extensions

Curb extensions, also known as neck-downs, bulb-outs, or bump-outs, are created by extending the sidewalk at corners or mid-block. Curb extensions are intended to increase safety, calm traffic, and provide extra space along sidewalks for users and amenities. Curb extensions have a variety of potential benefits including:

- Additional space for pedestrians to queue before crossing
- Improved safety by reducing motor vehicle speeds and emphasizing pedestrian crossing locations
- Less pedestrian exposure to motor vehicles by reducing crossing distances
- Space for ADA compliant curb ramps where sidewalks are too narrow
- Enhanced visibility between pedestrians and other roadway users
- Restricting cars from parking too close to the crosswalk area

COMMERCIAL

NEIGHBORHOOD

Crosswalk Markings

Typically, marked crosswalks should be installed at each leg of all signalized intersections, unless otherwise determined by an engineering study. Per MUTCD, stop lines should be striped at signalized intersections no less than 4' and no more than 30' from the crosswalk to deter motorists from encroaching in the crosswalk. Typically, marked crosswalks should be installed at each leg of all stop-controlled intersections near pedestrian generators. Marked crosswalks should be used at locations where pedestrian crossings are more frequent, such as school walking routes, park entrances, or other locations.

Building Scale

Building scale should consider the pedestrian. In general, this means providing retail on the first floor, visually breaking up wide buildings with windows, awnings, balconies, etc. to keep an area visually interesting and define the spaces on the street. Buildings that are no more than three stories are more conducive to the pedestrian environment.

Transit Access

Nearly all transit trips start with a walking trip. Well-designed streets can encourage transit use by providing safe pedestrian walkways and crossings, ADA curb ramps, and accessible platforms from which to board and alight. Buses must be able to move through traffic in a timely manner to maintain their schedules. In addition, transit amenities such as signage, shelters, benches and schedule information support transit ridership.

The ability for buses to carry bikes on board and the provision of bicycle parking near bus stops further increases the potential catchment area for bus service and can increase ridership. The frequency of bus service is an important consideration when design bicycle and pedestrian facilities to ensure minimal conflicts and ADA access.

Bike Facilities and Parking

To create a low-stress network for bicycling, facilities should be designed to appeal to the broadest range of users. In environments with heavy traffic volumes and high speeds, typically a high degree of separation between bicyclists and motor vehicle traffic is needed. A very brief overview of different types of bicycle accommodation is provided below.

Shared Roadway:

- Street designed to mix bicycle travel with other vehicles
- Requires additional measures to make low-stress on most streets
- Always high-stress if speed and volumes thresholds exceeded

Options to Make Low-Stress:

- Use traffic diversion and calming to achieve sufficiently low speeds and volumes (less than 20 mph or fewer than 2000 vehicles per day)
- Provide raised medians, curb extensions, button-activated warning beacons, or signals to assist with major roadway crossings

Other Optional Characteristics:

- Orient stop signs to cross streets to better accommodate through bicycle travel

On-Street Bike Lane (photo below)

- Lane on roadway reserved for bicycle use
- May require additional measures to make low-stress, depending on road way speeds and volumes

Options to Make Low-Stress:

- Add buffer space and/or separation between bike lane and traffic on streets with higher speeds or volumes
- Mitigate conflicts with turning vehicles
- Consider removing or relocating parking

Other Optional Characteristics:

- May transition to shared lane (or “mixing zone”) to accommodate right-turning vehicles, bus stops, steep downhills, or constrained sections
- Minimum lane widths depend on roadway characteristics

Separated Bikeway (photo below)

- One or two-way facility reserved for bicycle use and physically separated from roadway and sidewalk
- Low-stress between intersections

Options to Make Low-Stress:

- Extend median buffers through crosswalks to tighten radii of turning vehicles and provide space and visibility to encourage yielding
- Use signals to mitigate conflicts with turning vehicles
- Mitigate conflicts at driveways using signs and/or colored pavement

Other Optional Characteristics:

- Bus stops and parking, if present, are located between the bikeway and roadway
- Minimum bikeway width dependent on maintenance vehicles

Vertical Separation Techniques

A wide range of options are available to separate bikeways from other uses. These include planted medians, modular planter boxes, vertical curbs, parking wheel stops, rigid bollards, concrete barriers, or flexible delineators. See photos below for examples. Selections should consider on roadway conditions, maintenance, cost, and aesthetics.

Bollards

Planters

Flexposts & Parked Cars

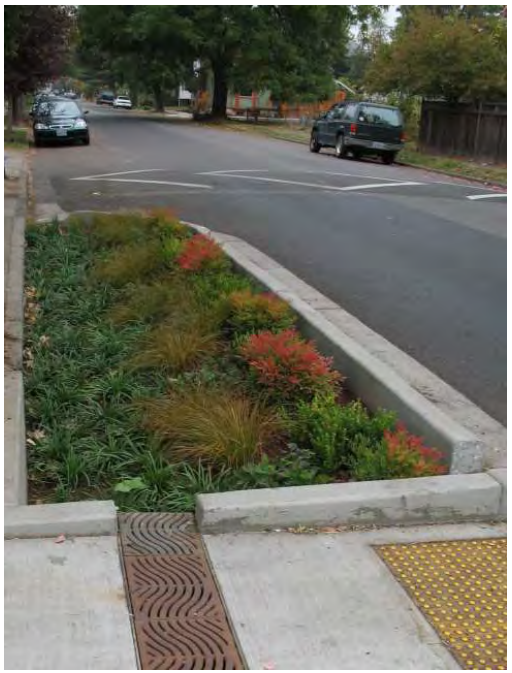
Bike Parking

Safe locations to secure bicycles helps to promote bike ridership. Bike racks may be standalone items bolted into the surface of the sidewalk or roadway. The alignment of bike racks should minimize the parked bicycles impact on the use of the sidewalk or curbside. Bike racks are frequently grouped in small clusters to better meet the needs of multiple users.

Trees and Landscape

Street trees enhance walkability by shading pedestrians from hot sun, breaking strong winds, adding an intermediate sense of scale between a person and large buildings or broad open spaces, and making streets aesthetically appealing through additional color, shape and texture. Trees also provide environmental benefits, including helping mitigate the urban heat island effect, capture rainwater runoff, and sequester carbon dioxide. And trees contribute to natural diversity and provide habitat for a range of species.

Landscaping creates visual interest along the street, softens the urban landscape, and helps manage stormwater drainage and runoff. Landscaping also creates a buffer between the pedestrian zone and the travel zone, providing a more inviting and comfortable environment for people walking.



Signals

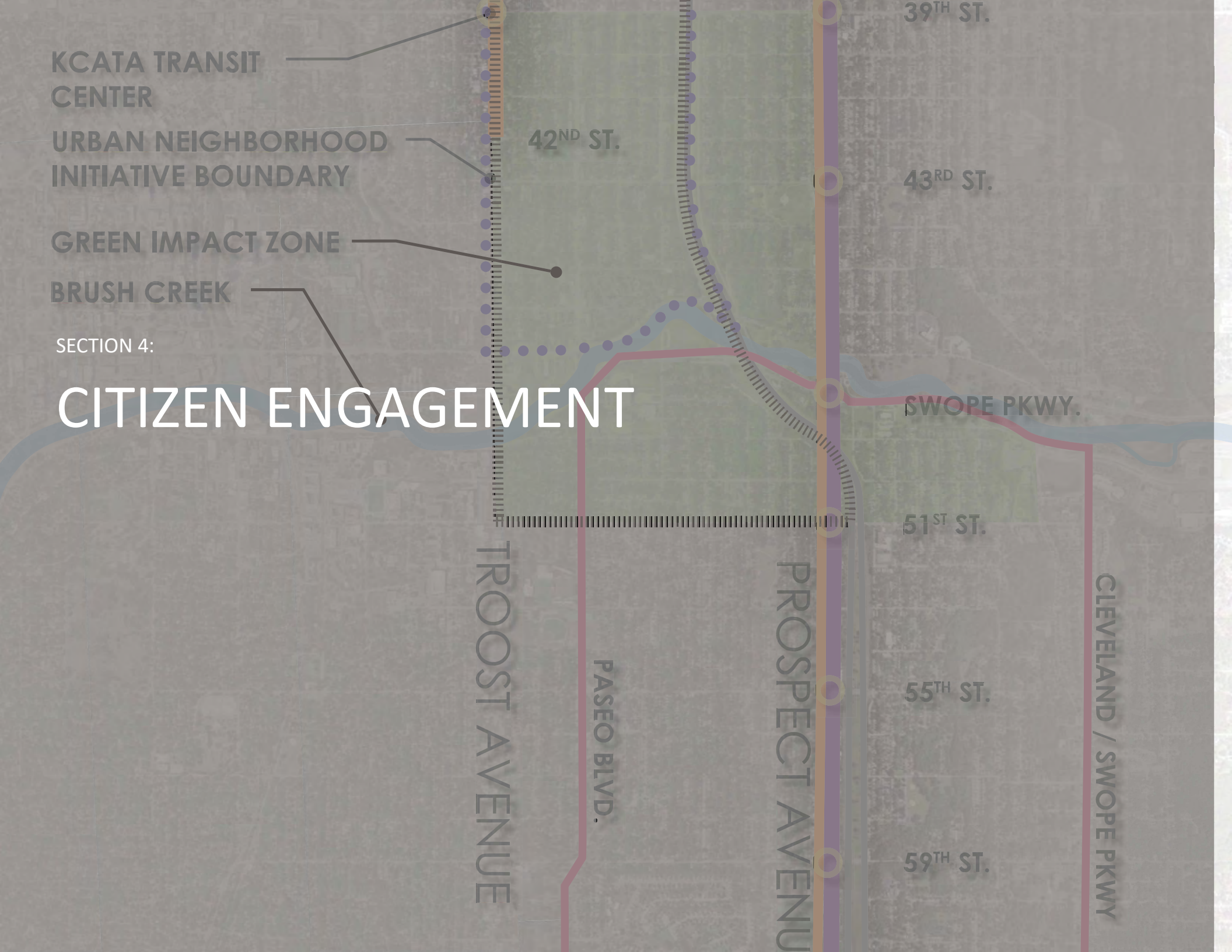
Several technologies can increase the safety and comfort of pedestrians such as pedestrian countdown signals, Pedestrian Hybrid Beacons, HAWK signals and RRFBs. Pedestrian Hybrid Beacons, also known as HAWK Signals (High Intensity Activated Crosswalk signals) (photo below), are traffic devices used to assist pedestrians crossing busy streets. When a pedestrian activates the system by pressing a button, overhead flashing yellow lights alert drivers that pedestrians have activated the signal. The yellow light then turns solid, preparing drivers to make a complete stop at the intersection. When the light turns red, pedestrians receive a white “walk” signal, and may proceed across the intersection. A flashing red appears when the pedestrian countdown starts, telling the driver that if the intersection is clear, he or she may proceed through it with caution after stopping. When the pedestrian countdown has expired, the beacon goes dark and traffic continues on its way.

Rectangular Rapid-Flashing Beacons (RRFB) shown below, left, are user-actuated amber LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system.

Lighting

Lighting is essential to enhancing a vibrant street life and the perception of security. Design of light levels should be based upon land use activity level (i.e. higher light levels in retail increases shopping, lower light levels in residential areas).

Pedestrian scale lighting can be considered in special districts where a local entity can provide a maintenance agreement with the City. These can have many aesthetic variations, including color, lumininaire and pole styles, and they offer the ability to incorporate artwork and banners.



SECTION 4:

CITIZEN ENGAGEMENT

SECTION 4: CITIZEN ENGAGEMENT

4.1 Overview

Stakeholders, property owners, business owners and residents have been steadily engaged in both corridors the last five+ years, participating in planning efforts for both MAX lines, economic development plans, specific development plans and previous corridor plans. In addition, another simultaneous planning effort to review the transportation issues along the Bruce Watkins Roadway (Connecting Swope) is currently underway. Thus, the strategy to avoid planning fatigue and confusion among the various efforts at the time this planning effort was conducted, public engagement for the Prospect corridor was conducted with the Prospect MAX Advisory Committee, chaired by Councilman Jermaine Reed.

4.2 Troost Avenue

Many of the neighborhood and business leaders along the midtown Troost Corridor have been actively engaged for several years through a coordinated neighborhood group called the Troost Coalition and through very active individual neighborhood organizations. The community was very engaged in both the Planning for Sustainable Places (PSP) sponsored 2013 Troost Corridor Redevelopment Plan, the 2013 Troost & Emanuel Cleaver Blvd Redevelopment Plan, and the development of the subsequent development and zoning overlay adopted by the City several years ago. These participants and others were invited to a community meeting on December 12, 2017 to hear about the purpose of the Troost/Prospect ROW study and a presentation on multi-modal complete streets concepts. An active discussion followed about bicycle safety and access, slowing traffic, and the desire for better pedestrian experience. These comments are noted below for future design consideration.

There was a strong desire expressed for the provision of bike lanes on both sides of Troost, protected between the on-street parking and curb lines. The group ranked three potential options shared by the Consultant Team and the two preferred options were then studied in detail and discussed with the KCATA and KCMO Public Works with regards to the existing Troost MAX transit service, and

COMMENTS RECEIVED FROM FIRST TROOST COALITION MEETING:

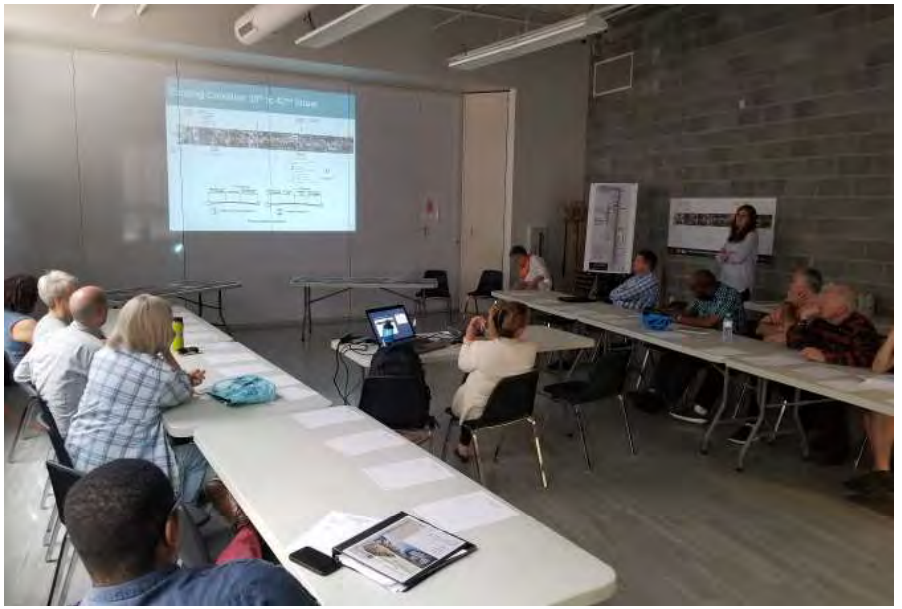
- Consider all user needs – pedestrians/cyclists/traffic flow/transit service.
- Public Right of Way should be a healthy and safe environment.
- Maintain consistent cross section throughout the corridor.
- Resolve conflicts between buses and cyclists.
- Connect Troost Ave. to KC's greater bike network.
- Separated, protected bike facilities are preferred.
- Incorporate B-Cycle station (Armour Blvd. & Troost Ave.)
- Address pedestrian needs with improved crosswalks & shortened crossings.
- Address excessive curb cuts.
- Address pedestrian safety at Kansas City Public School Building.
- Maintain economic development momentum along Troost Ave.
- Support people who are already in the neighborhood.
- Immediate improvements to leverage GO Bond funds.

Although not directly associated with this project, an ancillary street demonstration was sponsored by Better Block KC and the Troost Coalition. The event took place at 32nd Ter. and Troost on Saturday, April 15, 2018.

The photo left and below show how the group used traffic cones and potted trees to delineate proposed parking protected bike lanes.

The final community meeting for the ROW Plan for Troost was held on May 16, 2018 at the DeLaSalle Education Center (photo below). The Consultant Team presented their findings. and recommendations for a final preferred multi-modal plan that would address he needs of all users including the MAX transit system, vehicular traffic, the pedestrians and cyclists alike with on-street parking protected bike lanes on one side of the street and protected bike lanes on the other. The option would maintain a center turn lane.

Those in attendance included members of the Troost Coalition, members of the community at large and representation from the BikeWalk KC orgnization. The comments ranged from two citizens who did not support any dedicated bike lanes on Troost to four others together with the BikeWalk KC representive who voiced support for the proposed concept. Those in favor preferred protected bike lanes on both sides without a center turn lane, but it was agreed that a traffic investigation would be required before actual design to confirm the Consultant Team's recommendations as well as any further roadway changes involving removal of the center turn lane.



4.3 Prospect Avenue

The Prospect Ave. Right-of-Way Study (as well as the above-mentioned Bruce Watkins Roadway Study) was introduced to the Prospect MAX Advisory Committee at the Kansas City Area Transportation Authority (KCATA) offices on October 18, 2017. Attendees had an opportunity to ask questions about the planning effort and learn about the project, the schedule and key issues, which was mainly to capitalize on the multi-million dollar investment being made in the corridor through the Prospect MAX. Although outside the scope of this project, at that meeting, questions and concerns on the part of the Committee members centered mainly around economic development with the expressed need to:

Address blight and provide incentives for businesses.

City Staff in attendance assured attendees that the City is working on how to increase housing and commercial development along Prospect and the group ultimately agreed that infrastructure improvements can serve as a foundation for economic development.

The members also identified a desire for traffic calming and traffic signal improvements along the corridor and felt that support for people who are already in the neighborhood and barrier free design (ADA compliant public sidewalks and curb ramps) for the elderly population and those with physical or other disabilities should be a priority. At was also noted that infrastructure improvements should be targeted at nodes (possibly at or near MAX stations) to encourage economic development.

Comments received from first Prospect Advisory Committee meeting:

- Infrastructure can be a “foundation” for economic development
- Traffic calming is needed – mediate vehicular speeds
- Traffic signal improvements are important
- Support people who are already in the neighborhood
- Barrier free design is important, especially for elderly populations
- Target nodes for improvements

The second Prospect meeting was held on February 1, 2018 at the Alphapointe Campus at 75th & Prospect and again served as a method for combining feedback from participants about both the Prospect Ave ROW study and the Connecting Swope study. Attendees listened to an updated presentation on the ROW Plan that included detailed information about the existing conditions and findings of the investigation. Proposed recommendations for the public realm included ADA improvements and traffic calming strategies. The Consultant Team also reported that dedicated bike lanes are not workable in the near term due to high traffic counts and conflicts with the new Prospect MAX level boarding stations which was not met with any resistance from those in attendance. As a result of the Prospect ROW study, Prospect Avenue is not identified on the updated Bike KC Master Plan draft.

Community members were also able to contribute to a large mapping exercise to identify areas of concern, special economic activity and access issues.

SECTION 5:

FINAL PLANS AND RECOMMENDATIONS

SECTION 5: FINAL PLAN RECOMMENDATIONS

5.1 Evaluation of Alternatives (Troost)

Based on an inventory of the existing conditions, in preparation for the first Troost Coalition meeting, three alternative cross-sections were developed that could be implemented between the existing curbs without requiring major reconstruction. This approach will require the least amount of utility relocations, and assumes that the current MAX transit facilities will remain in their current locations. Thus, these options are the most cost effective short-term solutions. Although existing pavement widths vary, the concepts assume a typical width of 54'. The cross-sections provide different options for accommodating vehicles (including frequent buses), pedestrians (including many who access transit stops), and bicyclists. A description of each cross-section and a brief overview of their advantages and disadvantages is provided below.

Concept A (Figure 5.1)

This alternative reduces the travel lanes on Troost to one lane in each direction, maintaining parallel parking on both sides of the street, and adding a protected bike lane with door-swing buffer between the parking and the curb. A center turn lane would be provided only at major intersections. The existing sidewalk widths which vary along the corridor would be maintained. Bus boarding and alighting would occur at existing stop locations with the implementation of floating bus islands to maintain pedestrian accessibility across the bike facility (see intersection discussion). This alternative is preferred by some community members and should be explored further in the traffic investigation and design phase.

Advantages:

- increases bicyclists comfort due to separation from motor vehicles
- potentially reduces excessive travel speeds due to narrowing of roadway
- provides potential for reducing crossing distances at intersections with modified curb extensions/refuges
- maintains ADA compliant bus access
- maintains parking on both sides of street which may be important with new development currently happening in the corridor

Disadvantages:

- lack of center turn lane reduces driveway access along the corridor
- reduced vehicular level of service at signalized intersections to potentially unacceptable levels
- reduced ability to maintain transit headways

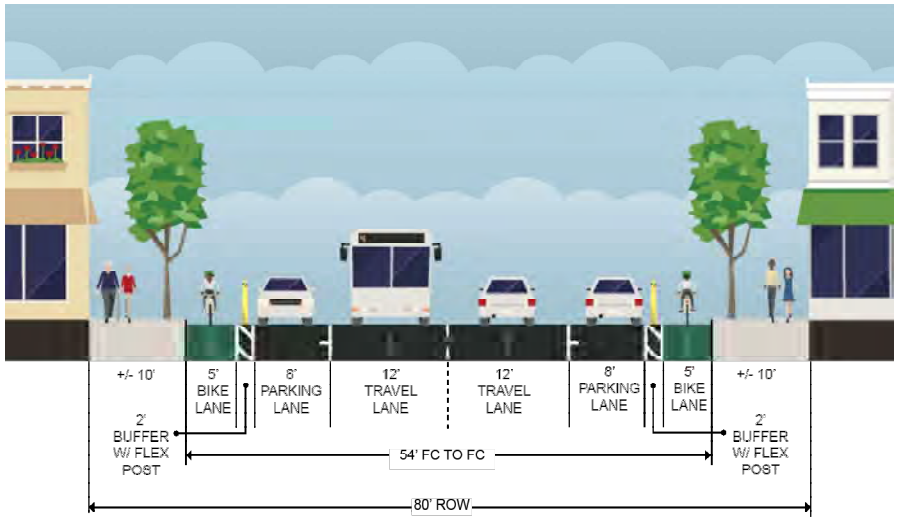


FIG. 5.1 CONCEPT A - Separated curb side bike lanes / center turn lane only at major intersections

Concept B (Figure 5.2)

This alternative reduces the travel lanes to one lane in each direction with a center turn lane, maintaining parallel on-street parking on one side of the street, and adding a two-way protected bike facility on the opposite side of the roadway. Existing sidewalk widths would be maintained. Bus boarding and alighting would need to occur at floating bus islands that provide pedestrian access across the bike facility, however this would create design challenges at the intersections as space would need to be "borrowed" from parking on the opposite side of the roadway and would result in lane shifts.

This concept was rejected by the Citizen's advisory group at the first meeting and was not studied any further.

Advantages:

- increases bicyclists comfort due to separation from motor vehicles
- potentially reduces excessive travel speeds due to narrowing of roadway and travel lanes
- provides potential for reducing crossing distances at intersections with modified curb extensions/refuges
- maintains center turn lane
- maintains parking on one side of street

Disadvantages:

- potential for increased bicyclist/pedestrian and bicyclist/motorist conflict due to two-way bike facility and frequent driveways
- reduces parking on one side of the street
- complicates intersection treatments and bus stop access
- reduced travel lanes and transit stopping in travel lane may impact vehicular level of service to potentially unacceptable levels
- may affect ability to maintain transit headways
- 10' lane widths do not meet City standards

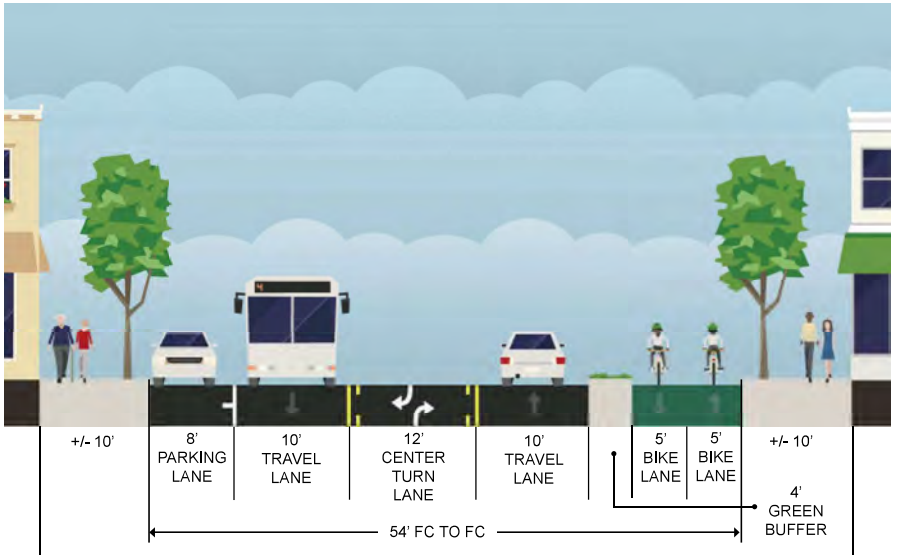


FIG. 5.2 CONCEPT B - 2-way cycle track / center turn lane

Concept C (Figure 5.3)

Based on input from the public, City Staff and the KCATA, Option C emerged as the primary recommendtion of the technical team. Although it may be more feasible than Concpet A, which was preferred by members of the Troost Committee, both options should be evaluated during the traffic investigation and design phase.

This alternative consists of reducing the travel lanes to one lane in each direction with a center turn lane and parking on one side of the street. A one-way protected bike lane would be provided on each side of the street. On one side of the street, the bike lane protection would be provided by the parked cars and on the other side of the street by a painted buffer and vertical element. In addition, the existing sidewalks widths which vary along the corridor would be maintained. Bus boarding and alighting would occur at existing stop locations with the implementation of floating bus islands to maintain pedestrian accessibility across the bike facility (see intersection treatments discussion).

Advantages:

- increases bicyclists comfort due to separation from motor vehicles
- potentially reduces excessive travel speeds due to narrowing of roadway
- provides potential for reducing crossing distances at intersections with modified curb extensions/refuges
- maintains ADA compliant bus access
- maintains center turn lane
- maintains parking on one side of street

Disadvantages:

- reduces parking on one side of the street
- reduced travel lanes and transit stopping in travel lane may impact vehicular level of service
- may affect ability to maintain transit headways at peak times
- 10’ lane width do not meet City standards

This option was the second choice of some of the neighborhood participants who favored Concept A with no turn lanes allowing parking protected bike lanes on both sides of the street. However, KCMO Public Works Staff and the KCATA expressed concern that the amount of drive entries along Troost will create safety concerns as a result of cars stacking waiting to make left hand turns, and may compromise the MAX transit service.

The provision of turn lanes should be addressed and studied in greater detail when the project moves to the design phase and a traffic investigation is performed.

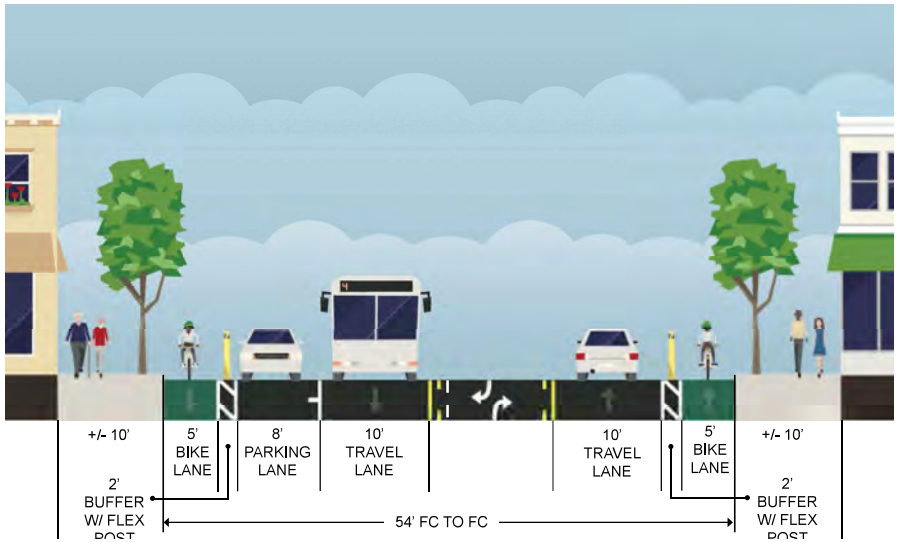


FIG. 5.3 CONCEPT C- Separated curb side bike lanes / center turn lane / parking on west side only

Intersection and Bus Stop Treatments

At intersections, it is important to mitigate conflicts between bicyclists and turning vehicles as well as buses that will be pulling to the curb to load and unload passengers. The current MAX Transit stations in Kansas City are located behind the curb and, as these are capital intensive, this study has proposed the following typical intersection treatments that assume the existing transit shelters would stay in their current locations. Figure 5.6 on the following page is an example of how the bike lanes and traffic lane configurations as called for in Concept C might be implemented with both MAX and local bus service.

Boarding Platforms at Troost MAX Stations

Figures 5.4 and 5.5 illustrate a floating bus stop treatment in plan and cross-section. An 8-10 foot wide pedestrian boarding island is provided between the bike lanes and the travel lane. Platform length will depend on the requirements of the MAX service, but at a minimum will require access to both front and back bus doors.

This solution eliminates the need for the bus to cross the bikeway to board at the curb, yet it still ensures accessibility for people with disabilities. In this scenario, the bikeway would ramp up at the pedestrian crossing from the sidewalk to the loading island to maintain a level surface for pedestrians from the transit shelter across the bikeway.

MAX buses, currently running at 10 minute intervals, will stop in the through traffic lane for loading. Thus, further traffic investigation will be need before design and implementation of this concept plan.

Several communities - New York, Pittsburg, Los Angeles and Oakland - have installed islands using prefab plastic platforms that allow testing the treatment without heavy infrastructure costs. The photo above is an example of this prefab treatment in Oakland, California.

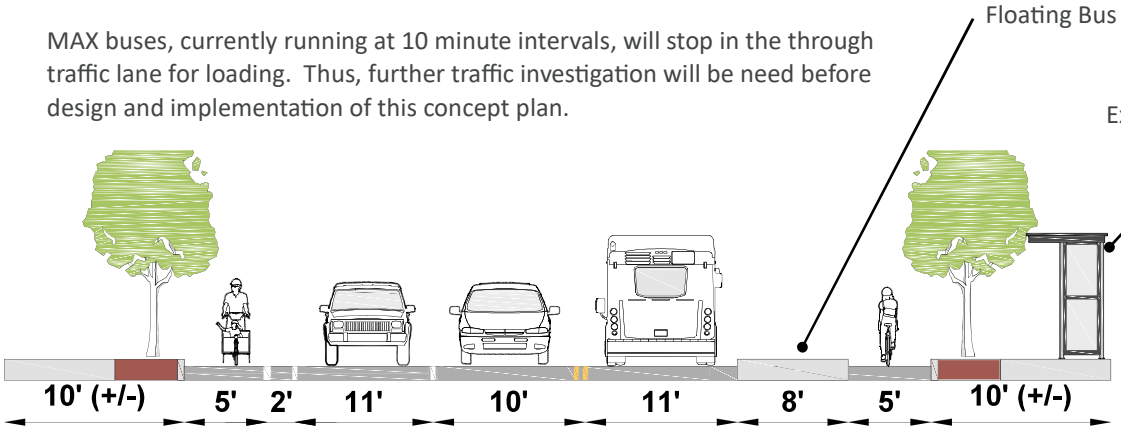


FIG. 5.4 Cross-section at Troost MAX intersections

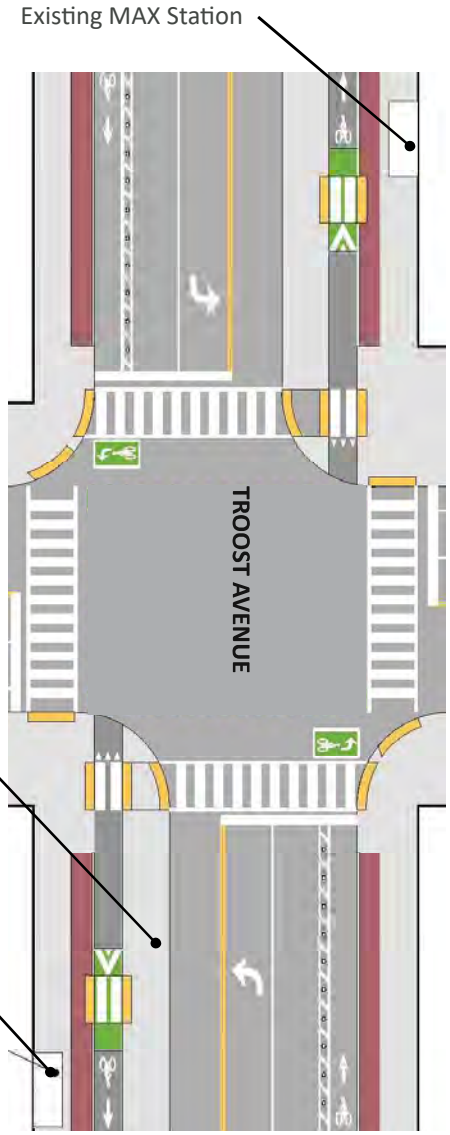


FIG. 5.5 Plan view at Troost MAX intersections

Treatments at Local Stops and Intersections without Bus Service

At local stops where service is less frequent than MAX service, it's possible for the bike lane to be dropped for a short distance and a mixing zone/shared lane provided so that the bus can pull directly to the curb. This is shown in Figure 5.7 at right.

Figure 5.8 (far right) shows striping only at non bus intersections.

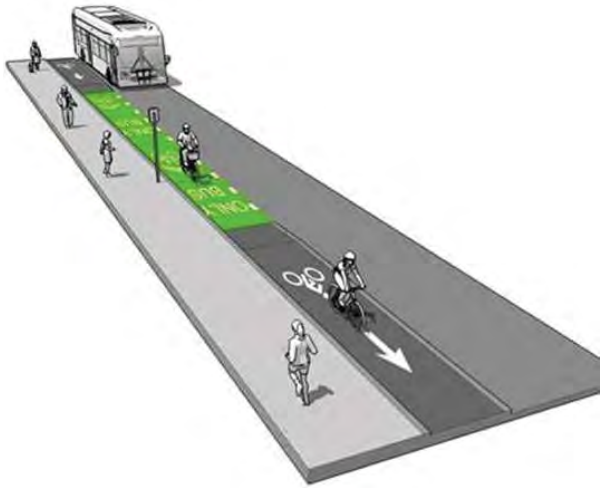


FIG. 5.7 Dropped/shared lane at local bus stops

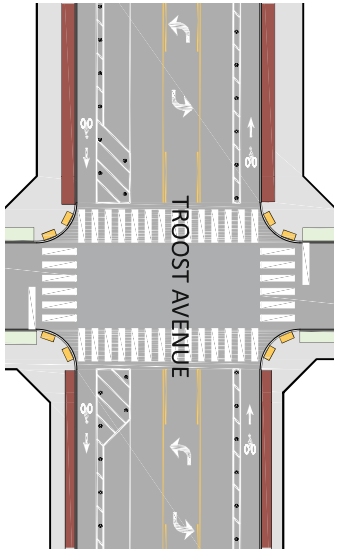


FIG. 5.8 Intersection with no bus stop/ striping only

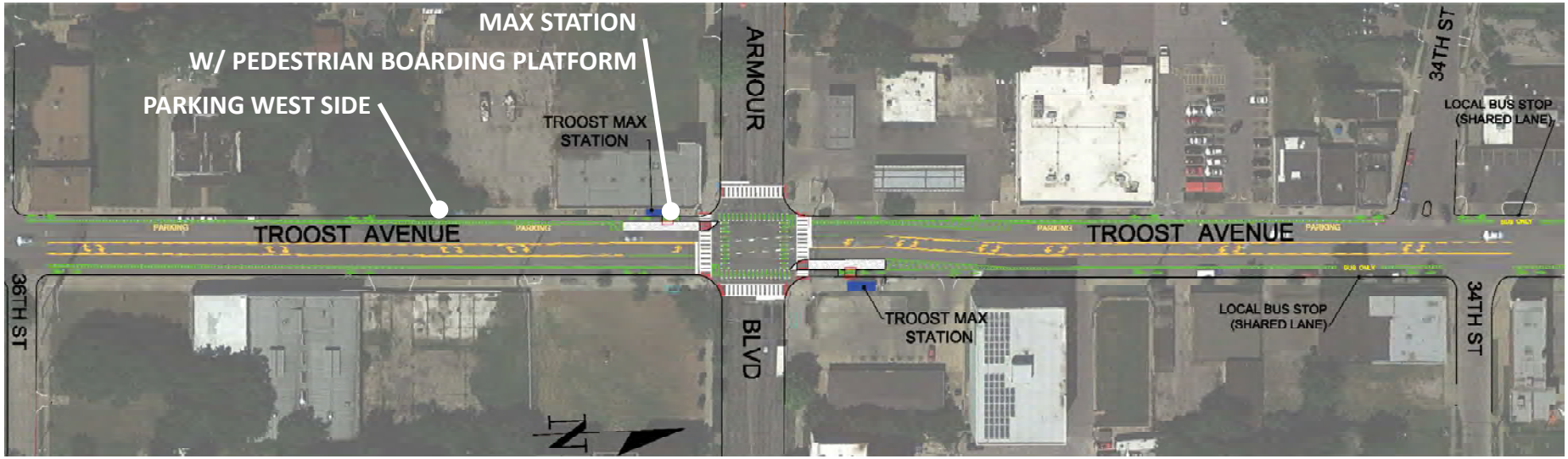


FIG. 5.6 Concept C implemented between 34th and 36th St.

5.2 Troost Avenue Recommendations for Additional Improvements

In addition to providing a multi-modal plan with features for safe and comfortable bicycle accommodations , the plan recommends other improvements to the public right of way to enhance the pedestrian experience.

Crosswalk Treatments

Install enhanced crosswalk treatments at strategic locations. These treatments provide another layer of pedestrian safety and can help to create District identity. Decorative, custom asphalt treatments (shown below) are fully ADA compliant and easy to maintain. However, these are expensive to install and would require additional funding as they are not standard Public Work policy.

On Troost, between 30th and 43rd, enhanced crosswalks should be considered. As seen below, there are existing piano key crosswalks at Operation Breakthrough at 31st and Troost, an early childhood educational facility.

Sidewalks and Street Trees

At a minimum, the needs of pedestrians are critical to providing safe and healthy communities. Deteriorated sidewalks and non-compliant pedestrian crossings should be an absolute priority for any planned right of way improvements within the project limits. Replace sidewalks and upgrade ADA compliance as noted on figures 2.1 and 2.2 on pages 2 and 3 of this report.

The pedestrian experience of the public realm is also shaped by a healthy and vibrant landscape. Overgrown, unhealthy or damaged street trees should be removed and a tree replacement plan put in place. Planting methods to better ensure the growth of healthy urban street trees should be a requirement. There is particular potential for landscape improvements along Troost from 33rd St. to 41st. St.

Although Troost has limited right of way, at development nodes there may be opportunities to increase the level of landscape with low growing plants or bioretention facilities to filter storm water runoff. Tree lawn (greenways) or other plants should be introduced in areas where it does not pose conflicts with parking (photo left) and are best located where property owners are willing to take an active part in maintenance.

Leverage Other Investment Activity

Over the last ten years, segments of the Troost corridor has been experiencing new revitalization, much of which as a result of investment dollars on the part of the KCATA's new MAX service and streetscape improvements, together with KCMO public infrastructure improvements. Going forward, further infrastructure improvements should be concentrated at or near existing transit facilities, and leverage new development activity. As an example, the development currently proposed for the Armour Blvd. and Troost intersection offers a excellent opportunity to enhance the public realm with intersection and streetscape improvements as recommended by this study. The concept of a protected intersection should be evaluated and implemented as part of that project.

30th to 31st Street

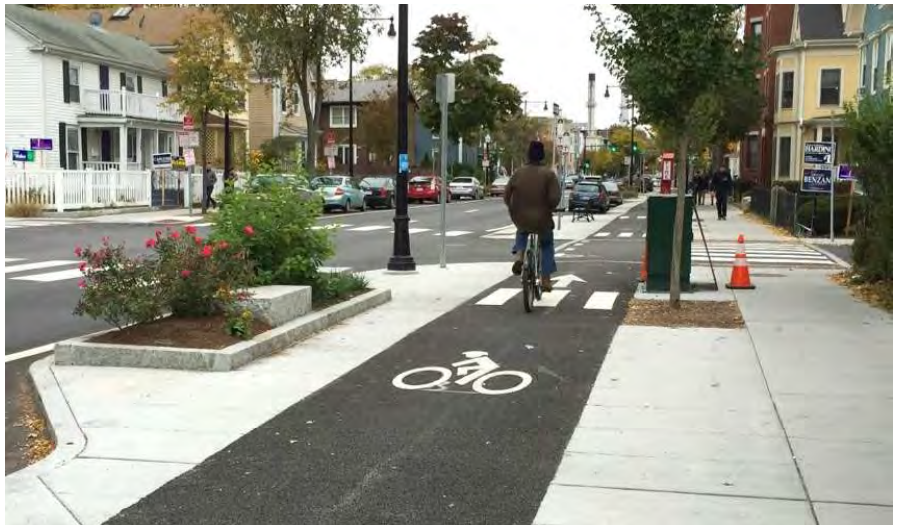
The recently completed Troost Roadway Improvements extended from 24th to 30th St. Previous Troost MAX Streetscape improvements included the 31st St. intersection. This left a gap in the infrastructure between 30th and 31st which is why this segment is included in this Concept Plan. The photo below shows the existing condition.

The recommendation is to continue the streetscape from the previous Troost Reconstruction Project north of 30th St. and at a minimum::

- Close unnecessary drive entrances along east side
- Add landscape screening buffer to parking lots per KCMO Standards
- Replace curbs
- Replace sidewalks
- Replace street trees
- Add tree lawn
- Add pedestrian scale street lighting

5.3 Troost Avenue Long-Term Alternatives for Bicycle Accommodation:

The long-term recommendation for providing bicycle accommodation is to provide a fully separated bike lane at the back of the curb which is exclusive for bicyclists (i.e. provided in addition to the sidewalk space). An example of this type of facility is provided below. This treatment would require a full reconstruction of the street and relocation of utilities and full traffic investigation to ensure acceptable levels of service for all modes of transportation.



circa 1950

2018

5.4 Prospect Avenue Recommendations

Although the community and stakeholders are supportive of future implementation of a multi-modal plan for Prospect to include dedicated bike lanes, at this time it is not feasible. This is due to the high traffic counts at some intersections and bus/bike conflicts associated with the new Prospect MAX service due to the available right-of-way and the completed Prospect MAX stations. Unlike Troost MAX, many of the Prospect MAX stations have been designed with level boarding. This increases the maneuvering distances needed and requires the buses to cross the bike lanes to align with the curbs, rather than stopping in mixed traffic at a floating boarding platform. Given the safety concerns posed by the bus/bike conflicts and the current condition of the pedestrian environment along much of Prospect, at this time, the recommendation is to concentrate infrastructure dollars on pedestrian oriented improvements.

Curb Extensions

Install curb extensions at strategic intersections to slow traffic, shorten pedestrian crossing distances and enhance commercial nodes (benefits and examples are also discussed in Section 3). The following intersections along the corridor have been identified based on the following criteria:

- current land use (high pedestrian activity)
- evidence of exisitng or beginning commercial development
- neighborhood character
- proximity to transit

As noted, this treatment has already been constructed as part of the Ladders of Opportunity federal grant award at the intersection of 27th and Prosect. Curb extensions are also under construction at 23rd and Prospect as part of the 22nd/23rd St. Improvements. **The following locations, as recommended by ths study, have been included in the Prospect MAX design packages.**

18th Street	30th Street	51st Street	68th Street
21st Street	35th Street	52nd Street	69th Street
22nd Street	38th-39th (mid-block)	53rd Street	70th Street
23rd Street	41st Street	58th Street	72nd Street
27th Street (existing)	43rd Street	67th Street	74th Street

Traffic Signals and Street Lights

Existing mid-block crossing locations have been identified at 17th St. and at the south end of the Brush Creek overpass at Swope Parkway. These locations may pose a safety concern for pedestrians and should be studied further for possible hawk-light or RRFB installation. It is further recommended to upgrade and unify the street lights along the corridor when funding becomes available.

The following signal improvements are associated with Prospect MAX:

12th Street	Emanuel Cleaver II Blvd.
Truman Road	Swope Parkway
18th Street	51st Street
27th Street	55th Street
31st Street	59th Street
Linwood Blvd.	63rd Street
35th Street	Meyer Blvd.
39th Street	Gregory Blvd.
41st Street	75th Street
45th Street	

Street Trees

The pedestrian experience of the public realm is also shaped by a healthy and vibrant landscape. Overgrown, unhealthy or damaged street trees should be removed and a tree replacement plan put in place. Planting methods to better ensure the growth of healthy urban street trees should be a requirement.

Like Troost, Prospect has limited right of way, but at existing and emerging development nodes, consider replacing concrete sidewalk at the back of curbs with tree lawn and new street trees to further enhance these activity areas. Locations to evaluate include: 29th, 30th, 31st, Linwood, Armour, 39th, 45th, Park, 51st, 58th, 59th, 60th, 68th, 69th, 70th Ter., Gregory, and 72nd .

Consider opportunities to increase the level of landscape with low growing plants or bio-retention facilities to filer storm water runoff where maintenance agreements can be acheived.

Sidewalks and ADA

Central to the recommendations for the Prospect Avenue plan is replacement of deteriorated sidewalks and curbs and ADA improvements. Well maintained sidewalks and a walkable public space make people feel safe and promote economic development by attracting new business. See the photo below. These are the fundamental vision goals of the Prospect corridor. As discussed in Section 2, the current condition of sidewalks and non-compliant ADA crossings poses a significant barrier to realizing these goals.

As part of the new Prospect MAX, intersection improvements outlined above and including new ADA curb ramps, will be constructed in the coming year. These recommendations were a direct result of this PSP planning effort. As well, additional streetscape improvements including new sidewalks, curbs and curb ramps concentrated near to the local bus stops and MAX stations, will be constructed as budget allows.

Completing the replacement of sidewalks and curbs and addressing ADA compliancy should remain a priority. Recommendations for further sidewalk replacements not being completed by the MAX construction are found in Figure 2.7, page 8 “deteriorated sidewalk.” These segments should be prioritized. As well, excessive driveways should be closed and those that remain should be narrowed to comply with KCMO City standards.

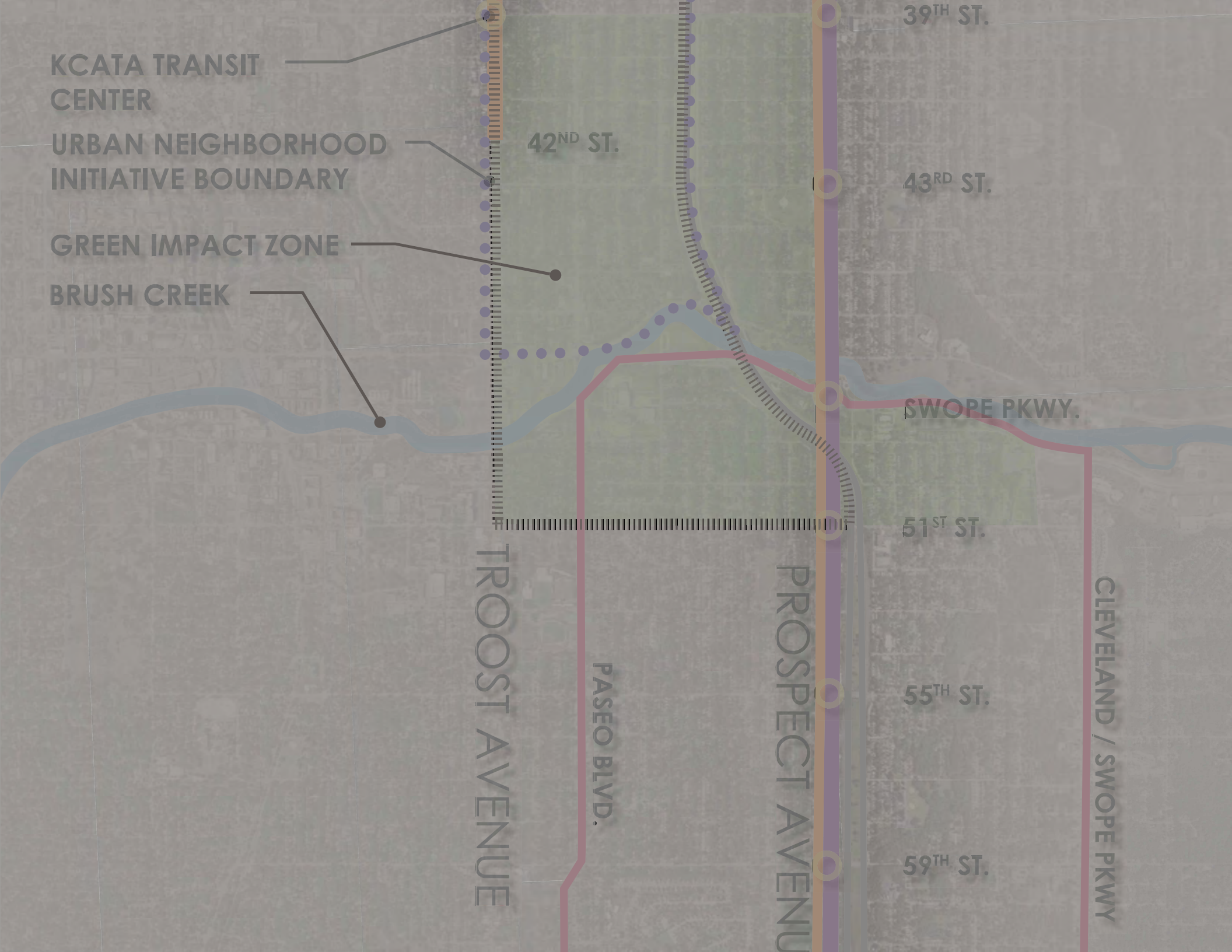
Crosswalk Treatments

Install enhanced crosswalk treatments at strategic locations such as educational factilties as at Operation Breakthrough shown in the photo below. These treatments provide another layer of pedestrian safety and can help to create District identity in a a diverse corridor like Prospect Ave. Decorative, custom asphalt treatments (shown in the photos below) are fully ADA compliant and easy to maintain. However, these are expensive to install and would require additional funding as they are not standard Public Work policy.

Leverage Other Investment Activity

Much like Troost, the Prospect corridor is poised to experience increased economic development and revitalization resulting from the new Prospect MAX transit service. In fact, new development is already happening, some of which was showcased at the "Progress on Prospect Event" in 2016 and identified on the current conditions mapping in Section 2. To keep this momentum moving forward and to leverage these new investments, planned infrastructure improvements should be concentrated at or near the new transit facilities, and other development nodes.

Commercial Development Activity at 72nd and Prospect Ave.


KCATA TRANSIT CENTER
URBAN NEIGHBORHOOD INITIATIVE BOUNDARY
GREEN IMPACT ZONE
BRUSH CREEK
39TH ST.
42ND ST.
43RD ST.
SWOPE PKWY.
51ST ST.
55TH ST.
59TH ST.
TROOST AVENUE
PASEO BLVD.
PROSPECT AVENUE
CLEVELAND / SWOPE PKWY