

B2.1

The Combined Pedestrian Realm/ Mobility/ Land Development Concept Plan

The diagram on the facing page illustrates the combination of the Pedestrian Realm/Mobility Plan and the Development Concept Plan, which are described in detail in the sections that follow. The Urban Design Plan for the North Corridor illustrates broader elements of the Corridor that will eventually result in Transit Oriented Development and connections to the surrounding community.

The Plan illustrates detailed areas that were developed during the workshop for the North Corridor, and identifies stable neighborhoods, located in proximity to the Transit Street that should be protected from redevelopment in the future.

The North Corridor is anchored with areas that lend themselves to redevelopment at a large scale with the Northline Mall to the north and the intermodal station to the south. The Urban Design Plan shows that the stretch of Main Street from the intermodal station to Boundary Street is appropriate for transit-oriented development. As illustrated in the demonstration plan for the Quitman Station, both sides of Main Street can be redeveloped into

a combination of small, infill, mixed use buildings as well as large half block forms of development. The Community College offers the opportunity to redevelop with a major mixed use complex. This area is appropriate for innovative housing over retail, as well as large format retail to support the intermodal station next to the new community college building.

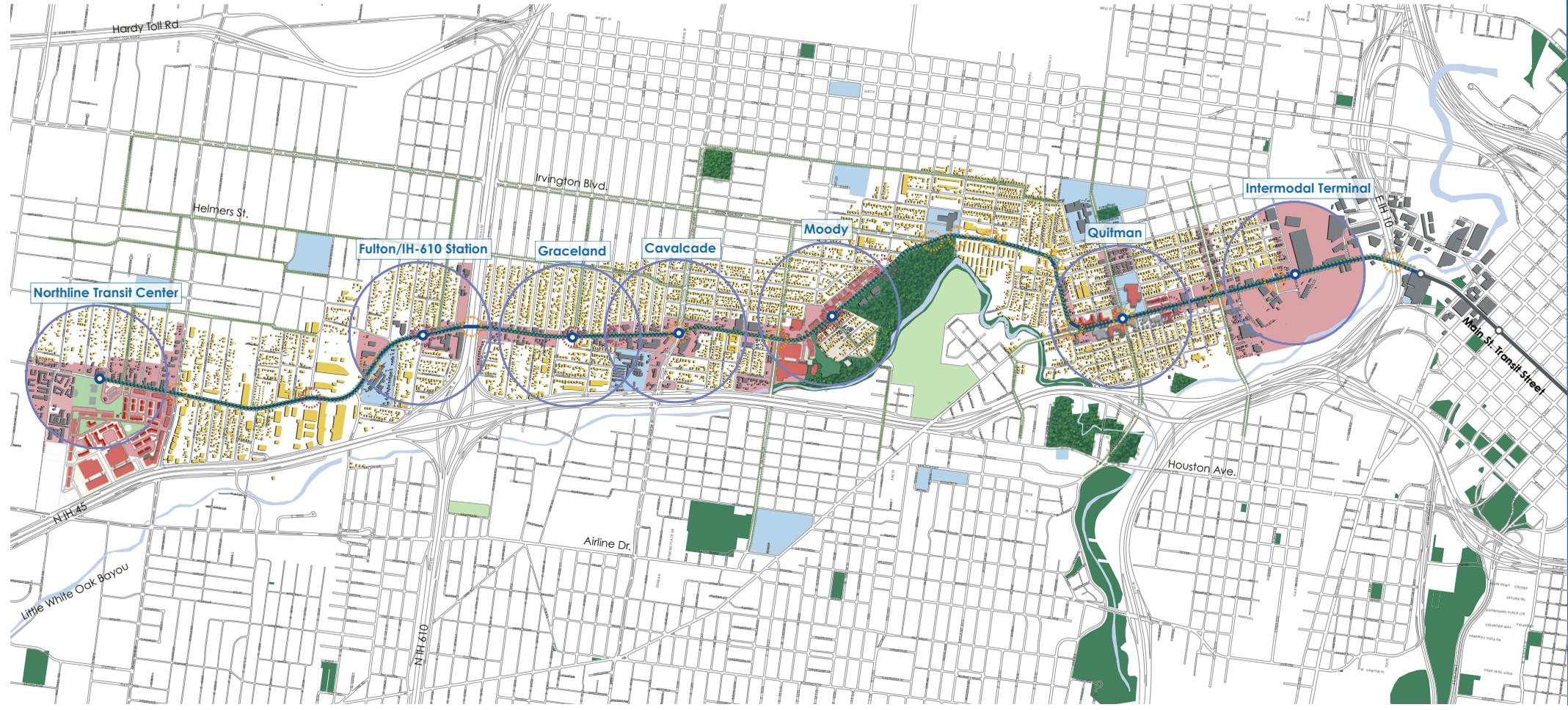
Between the two major redevelopment areas, Fulton Street is a mix of low-density residential areas and industrial buildings. In this segment of the new transit line, most development will be incremental and of a scale that compliments the residential area. Most of this redevelopment will be achieved through 3-4 story infill buildings and, on the larger industrial sites, through block developments.

Finally, the Plan highlights important connections to the Transit Street from the surrounding community. The Plan shows that major connecting streets such as Cavalcade, Quitman and even Crosstimbers should be developed with a strong pedestrian scale and landscape treatment to reinforce their importance as links to transit at the stations.

Pedestrian Realm/Mobility/Development Concept Plan

North

- Stable Area
- Development Opportunity Area 1 - Corridor
- Development Opportunity Area 2 - Downtown
- Park
- School
- Existing Pedestrian Crossings
- Link Streets
- Demonstration Plans
- Built Form Edge
- Stations
- Proposed Pedestrian Crossing



B2.2

Pedestrian Realm/ Mobility Plan

This Plan illustrates recommendations to improve and enhance the pedestrian realm and mobility conditions within the North Corridor. The goal of these recommendations is to provide a safe, vibrant, attractive and highly functional pedestrian experience along the North Corridor Transit Street (Fulton – Boundary – N. Main Street) adjacent to proposed transit stations/transit centers and along key connecting streets.

Beautiful, tree-lined, pedestrian-focused streets are the framework of the Pedestrian Realm/Mobility Plan. Collector streets comprise the largest percentage of public space and as such must be enhanced and treated as important public places. When streets function well, they are lively places where cafes, corner flower shops, public art and gardens create vibrant outdoor spaces. They are the places where the eyes of the community are on the activities of the street, the frontage for development and the addresses of businesses.

Fulton/Boundary/North Main Streets comprise the main transit spine with key east/west connecting streets also identified for streetscape enhancements. The east/west connecting streets, such as Hogan, Quitman, Glen Park, East Cottage, West Patton, Graceland, Caplin, and Garrotsville, provide important links to adjacent destinations such as

parks, schools, community facilities and trails. Additional north/south streets such as Bauman, Appleton, Helmers, Irvington and Robertson are also identified for streetscape enhancements to extend pedestrian links to and from the transit line to community facilities.

Streetscape enhancements should include street tree planting with the ambition to create a continuous pedestrian canopy. Street trees will clearly identify the important streets and public places and will provide shade to clear, wide, continuous sidewalks extending from back of curb to building fronts along the Transit Line Streets and connecting streets. In addition, pedestrian level lighting and street furnishings are appropriate on these streets.

Lighting along the Southeast Corridor Rail Line is recommended to be consolidated, as possible onto the catenary poles to be installed for the electrical service to the light rail cars. Both street lighting and pedestrian lighting can be attached to these catenary poles effectively. Consolidating lighting on these poles will avoid the visual clutter and expense of multiple poles.

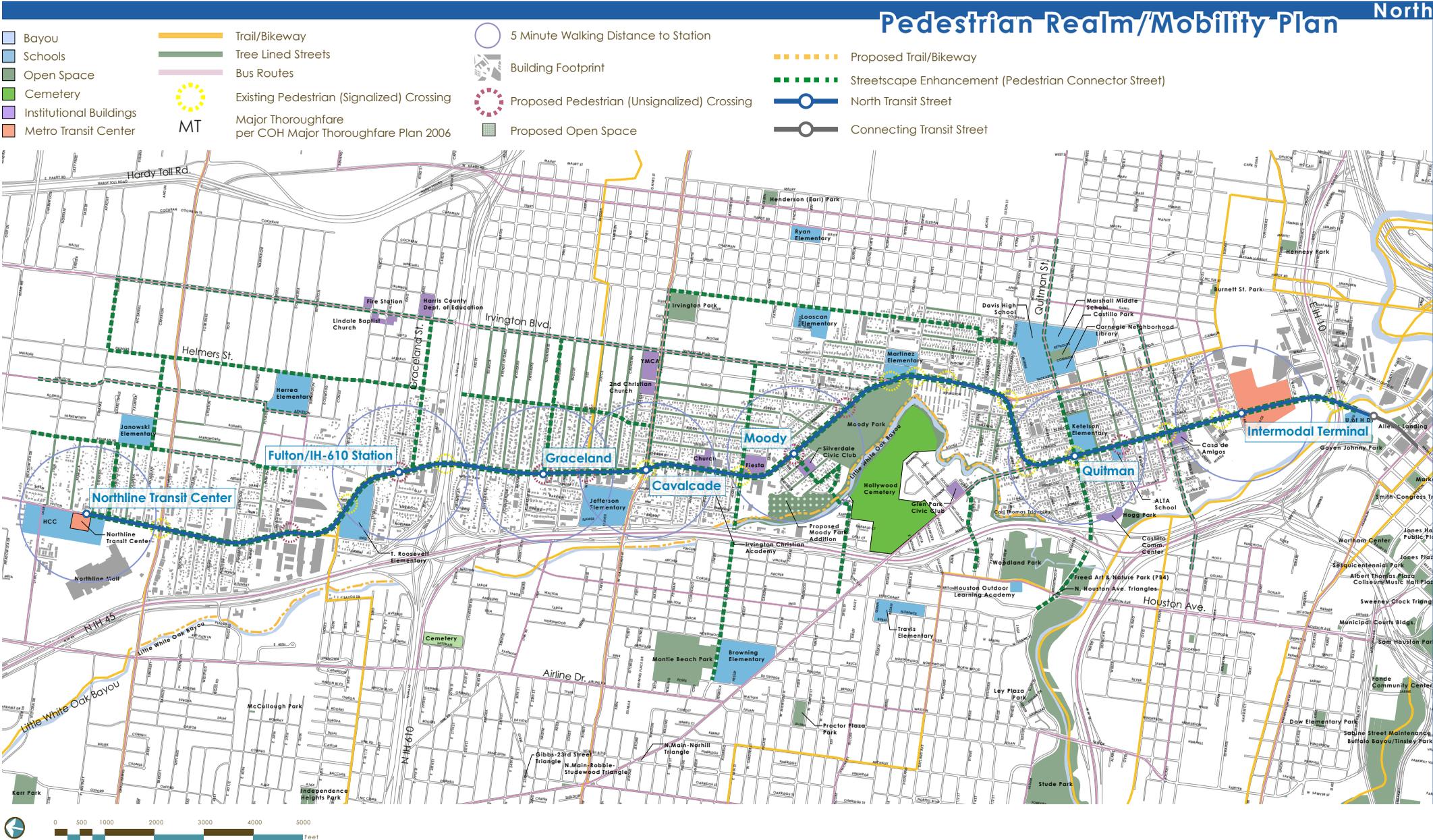
Ample pedestrian crosswalks are crucial to the perception of accessibility to both sides of the North Corridor Transit Line. Great care to provide safe, well-marked and unimpeded crossing opportunities especially within retail zones is critical. Bulb-outs reduce crossing distances and should be designed where on-street parking is proposed. Intersections along the Transit Corridor in need of crosswalk enhancements are at Bennington, Melbourne, Graceland, Joyce, Catherine and Paschal.

Current bike lanes serving the North Corridor area should be connected to transit stations. These existing bike lanes are also recommended to be widened to AASHTO standards to improve their functionality and safety for cyclists.

Moody Park, on Fulton Street, is ideally located to provide a key focal point and public space for the area. The fact that it is a regional park means that it can serve as an amenity for adjacent Transit Oriented Development.

Urban Squares are smaller scale publicly accessible open spaces that should be located in association with Transit Oriented Development. These small plazas are more urban in nature and do not include active/sports facilities. Urban Squares are generally accessible to public use, often privately owned and may be gated or well lit for night security. These squares are primarily paved with planting areas, shade trees, planters, public art, fountains and seating for passive, outdoor enjoyment.

The North Corridor boasts linkage to Stude Park/Woodland Park, a linear open space system along White Oak and Little White Oak Bayous. These urban Bayous provide canoeing, fishing, hiking and biking within densely vegetated areas. Future extensions of existing trails along Little White Oak Bayou are proposed by the City of Houston Parks and Recreation Department. These extended trails will connect the White Oak Bayou's Stude and Woodland Parks to Moody Park, White Oak Parkway and beyond.



B2.3

Land Development Concept Plan

The Land Development Concept Plan divides the North Corridor into two categories based on their development potential:

Development Opportunity Area 1 - Corridor

The Development Opportunity Area 1 is largely concentrated at the southern and northern ends of the Corridor. At the southern end of the Corridor, the Development Opportunity Area 1 comprises mainly older underdeveloped industrial and employment lands, while older retail commercial uses characterize the northern end of the Corridor.

In addition to these two concentrations, the Development Opportunity Area 1 flanks a large component of Corridor's length, covering a narrow portion (1/2 block depth) along the east and west sides of North Main Street and Fulton Street. An existing hike and bike trail consists primarily of smaller scale commercial and retail uses. Development Opportunity Area 1 also extends along some of the east-west roadways east of North Main Street and Fulton Street where commercial and employment uses have encroached into stable residential areas.

Stable Areas

Stable Areas are comprised of the predominately residential neighborhoods and parks along the length of the North Corridor. Stable areas are those areas that are not likely to experience large scale redevelopment activity as a result of the planned Urban Corridor. Areas designated as stable include existing stable residential neighborhoods, existing parks and open space as well as significant institutional uses both within and outside of the 1/4 mile stations radius.

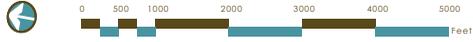
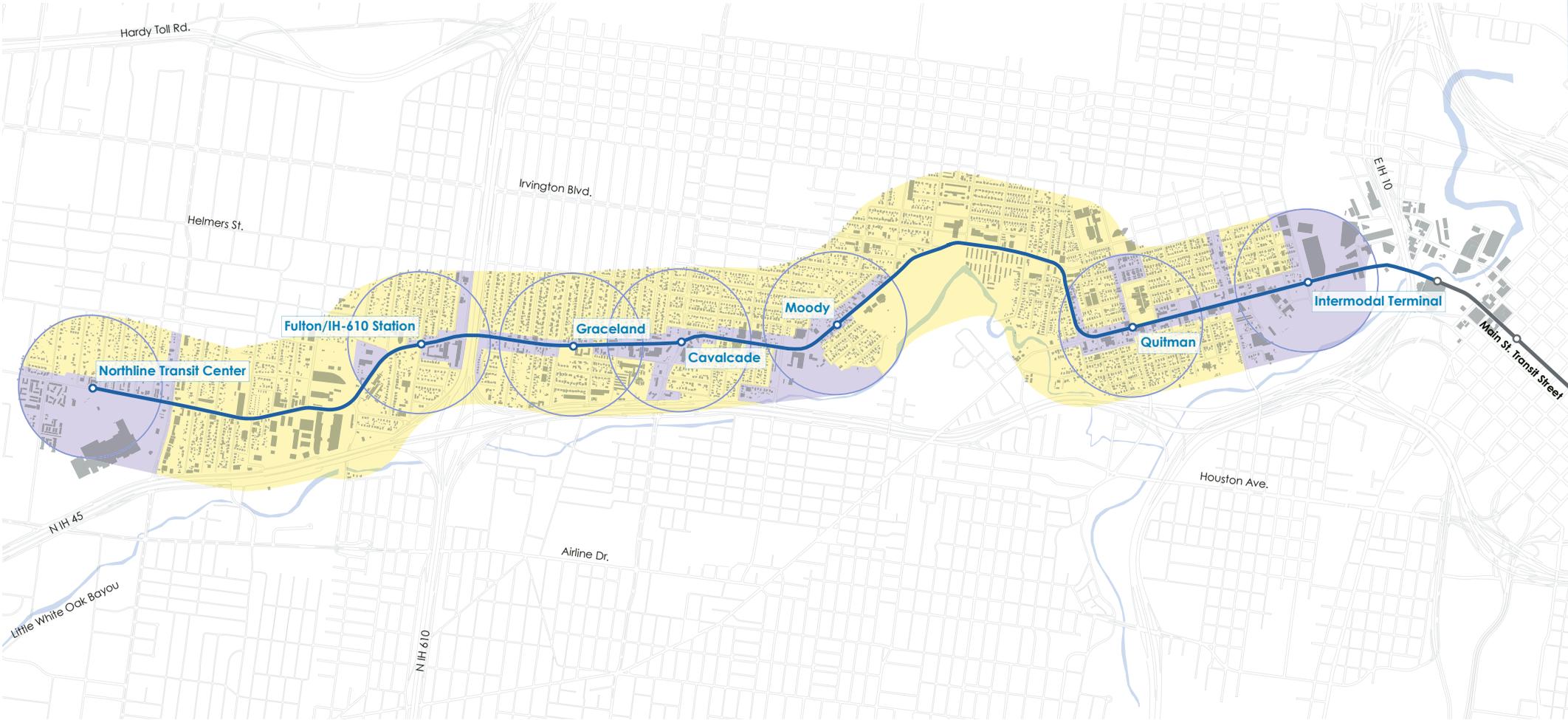
B2.3.1 Demonstration Plans

Three Demonstration Plans for prototypical sites were prepared to demonstrate conceptually how Transit Oriented Development could manifest itself given the context and condition of the North Corridor.

The following diagrams provide a collection of images including a site plan, photographs of development precedents and photo simulations of large lot redevelopment, a large lot with minimum frontage on the Transit Line and a large through lot.

Land Development Concept/Infrastructure Plan

-  North Transit Street
-  Connecting Transit Street
-  5 Minute Walking Distance to Station
-  Development Opportunity Area 1 - Corridor
-  Stable Areas



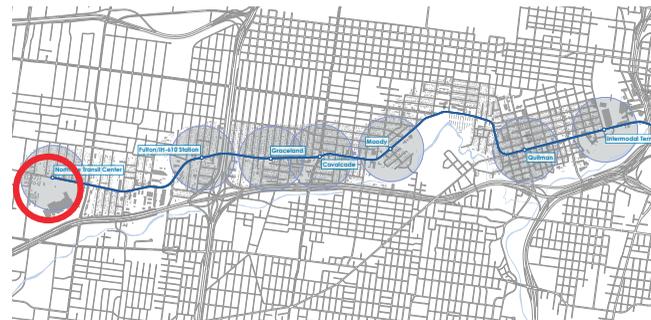
1 Large Through Lots

Northline Mall, North of Crosstimbers

Located on the East side of North Freeway, this site is the location of the existing Northline Mall. The site is an example of a large through lot prototype. An inter-modal transit station and a Houston Community College facility add to the dynamics of the site.



Existing site conditions



Location of site in corridor



Demonstration Plan created during the workshop

Site Characteristic

- The site comprises approximately 3,385,855 sf of area (78 acres);
- the site has 2,594 linear feet of frontage on North Freeway, 1,385 linear feet on East Crosstimbers Street, and 951 linear feet on Fulton Street;
- a proposed transit station adjacent to the site;
- the area surrounding the site is a mix of residential, and commercial; and,
- this site lends itself to a mix of uses due to its scale and accessibility.

The Program

- The program for the site includes residential multi-family, single-family homes, residential over retail, 1-2 story retail, and "big box" retail stores on both sides of the Transit Street.

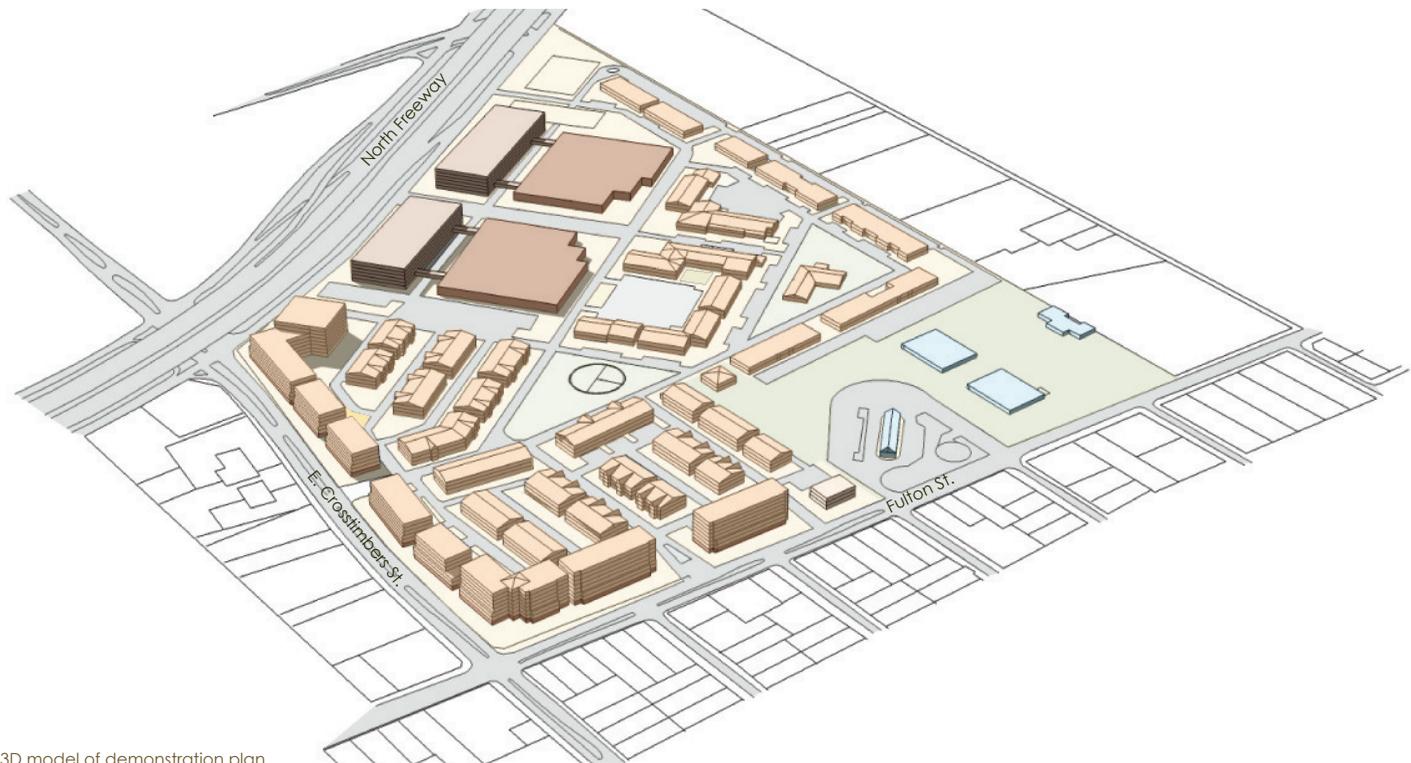
The Design Solution

- A site plan including mixed use multi-family over retail and structured parking serving the mixed use development. The new development has been designed to create a retail village core surrounded by residential units resulting in a strong pedestrian environment.

The Results

- 951 linear feet of frontage on the Transit Corridor;
- 830 townhouses;
- two "box" retail stores at 218,427 sf along North Freeway;
- two large format retailers at 77,000 and 71,000 sf;
- two parking structures at 670,350 sf;
- 866 apartments, approximately 100 apartments in mixed use buildings;
- 348,517 sf of retail along East Crosstimbers Street and Fulton Street residential units on the interior of the site and along Northline Mall.

Demonstration Plan North



3D model of demonstration plan



Photomontage illustrating the potential enhanced streetscape and built form surrounding Northline Mall



Precedent - Apartments over at grade retail



Precedent - Mid-rise apartments



Precedent - Stores with pedestrian activity at grade

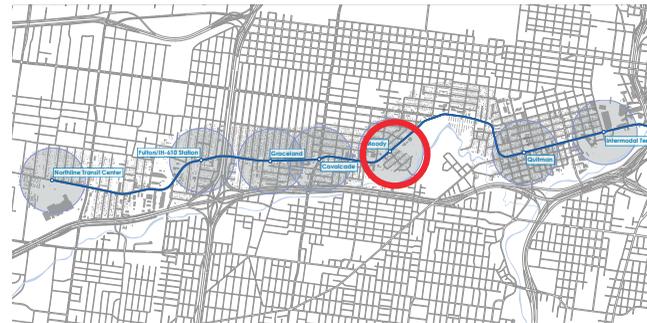
2 Large Site

Moody Station, North of the Park

This site is located on the south side of Patton Street. The site is an example of a large site prototype.



Existing site conditions



Location of site in corridor



Demonstration Plan created during the workshop

Site Characteristic

- The site has 3,906 linear feet of frontage on Fulton Street and 2,461 linear feet on Patton Street;
- the area surrounding the site is predominantly residential with some minor retail and vacant land; and,
- the south west edge of the site is formed by Moody Park.

The Program

- The program for the site includes multi-family and mixed use apartments, residential over retail, detached family homes and a "big box" retail store on both sides of the Transit Street.

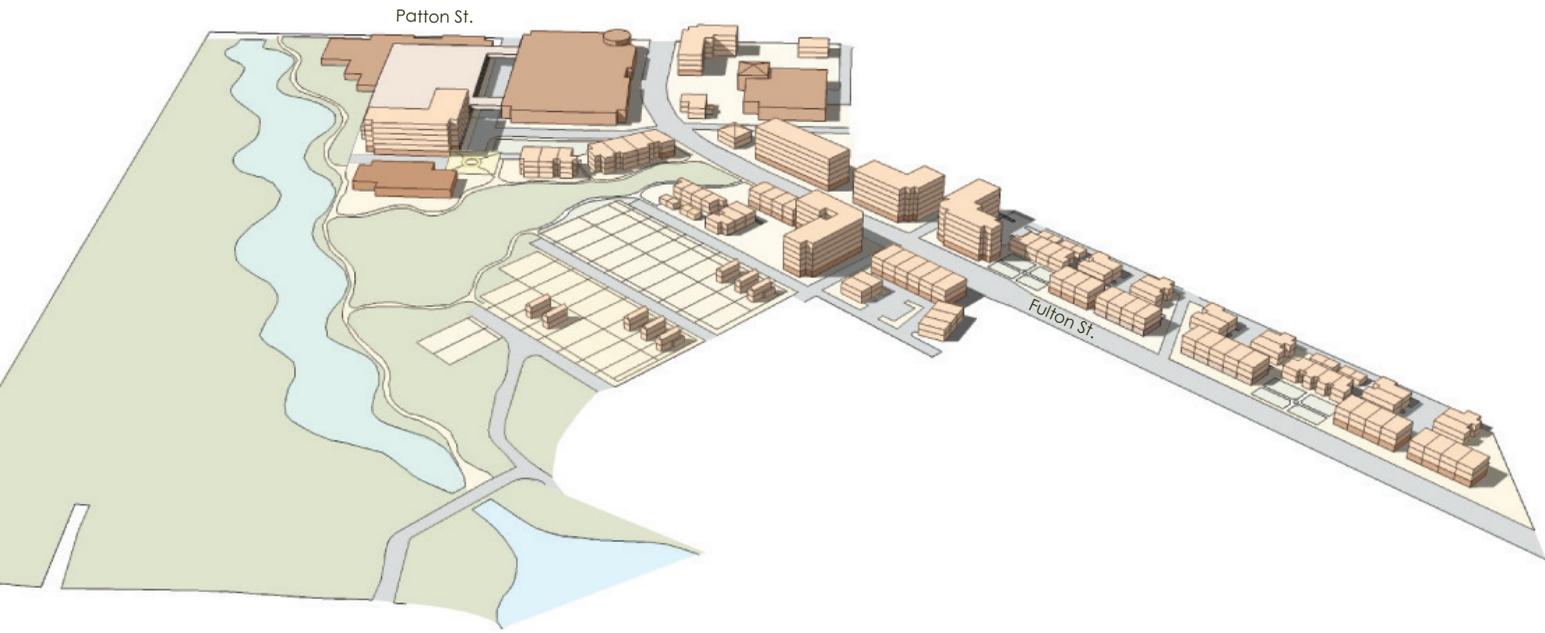
The Design Solution

- Mixed-use residential over retail along Fulton Street and development of parkettes to generate meeting places. A commercial edge with structured parking at the intersection of Patton Street with Fulton Street creating a gateway at the LRT station.

The Results

- Low-rise mixed use buildings facing the parkland and providing urban edge on the east of Fulton Street;
- 3,906 linear feet of frontage on the Transit Corridor;
- 430 townhouses;
- 380 live/work units;
- one "box" retail store at 256,095 sf;
- parking structures at 213,397 sf;
- 443,214 sf of retail;
- 934 apartments; and,
- single family homes 42 lots.

Demonstration Plan North



3D model of demonstration plan



Precedent - Low-rise apartments adjacent to three-story townhouses



Precedent - Retail framing the street corner



Precedent - Townhouses as suggested on plan

3 Large and 1/2 Lot Single Frontage

Quitman Station, South of Boundary

Quitman Station, from Boundary Street to Paschall Street. This site is an example of large single frontage and half lot single frontage developments.



Existing site conditions



Location of site in corridor



Demonstration Plan created during the workshop

Site Characteristic

- The site comprises approximately 296,349 sf of area (6.80 acres);
- the site has 1,630 linear feet of frontage on North Main St; and,
- the area around the site is predominantly low rise residential with some retail.

The Program

- The program for the site includes multi-family and mixed use apartments, residential over retail, single family homes.

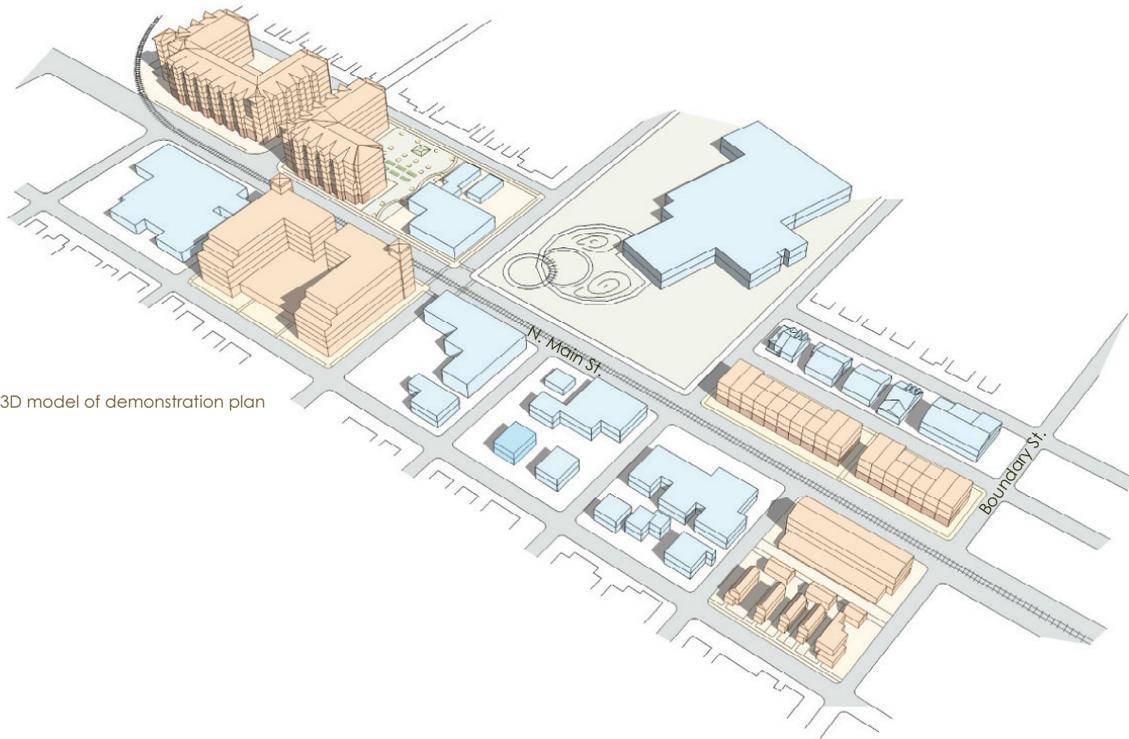
The Design Solution

- Infill retail development and mixed use adjacent to Harrisburg Boulevard;
- structured parking in later phases to allow for higher density mixed use;
- development of a small public space on the north side directly across from a semi-public space on the south to produce a neighborhood focus; and,
- green connections to Gus Wortham Park adjacent to Sgt. Marcia.

The Results

- 1, 630 linear feet of frontage on the Transit Corridor;
- 58 live/work units;
- 56,506 sf of retail;
- 299 apartments; and,
- five lots of single family homes.

Demonstration Plan North



3D model of demonstration plan



Photomontage illustrating the potential enhanced streetscape and built form surrounding Quitman Station



Precedent - Courtyard in a high density residential development



Precedent - Apartments over retail



Precedent - Apartments with at grade retail

B2.3.2 Development Analysis

The following analysis is intended to test underlying development economics in the North Corridor market context. The development proforma is generic in nature and not intended to represent specific site feasibilities. The form and scale of development, (an infill townhouse development site) is indicative of the type of transit-oriented development one would anticipate could emerge over time in this area. Office buildings, for example, are unlikely to drive denser development in this Corridor given the absence of an existing nearby office concentration.

Development Scenario 1 Infill Townhouse Project

Description of Development

A generic development proforma was prepared for a 48-unit, three story townhouse project. The land area of the site measures two acres, and the units average 1,500 sf. There is one parking stall per unit, although additional surface parking may be available on a driveway, on-street parking or in a shared communal lot. The total development time horizon is 16 months from land acquisition to full occupancy. The proforma details are summarized on the following page.

Comparable Properties and Market Parameters

Two existing townhouse development projects were identified in proximity to the Burnett and Cavalcade transit stops within the North Corridor; one at 311 Hogan Street, and the other at 722 Redwing Place Drive. The Hogan Street townhouse unit was 1,400 sf, and had an asking price of \$198,000, while the Redwing Place townhouse unit was in excess of 1,750 sf and had an asking price of \$194,500. The prices for the two comparable projects are \$140 psf and \$110 psf, respectively. These projects are within a similar size range compared to the 1,500 sf units proposed in the development proforma illustrated below.

As outlined in the corridor overview above, based upon MLS data from the Houston Association of Realtors, the average resale townhouse/condominium price in the Central North MLS District 9 in 2007 was in the range of \$185,000. However, this region encompassed a large housing stock north of the inner-loop that was not included in the study area. It is estimated that average housing cost for townhouse properties in proximity to the North Corridor is closer to \$200,000. In contrast, single family homes in the MLS were in the range of \$234,000 (generally older supply, compared to the newer townhouse/condominium units that transacted).

Proforma Results

Understandably, the economic price required to justify new construction of townhouses in this area is within the range of current pricing at comparable projects, with land acquisition costs and construction costs projected near the

middle point of market range, producing a similar overall quality and character of building finish. The development proforma presented below suggests a required sale price of around \$183,000, or \$122 psf, compared to current asking prices for similar projects in the area in the \$110 to \$140 psf range. There may be a potential to upgrade the building materials and finishes (and corresponding price for the project) closer to the \$200,000 per unit range, or \$133 psf, depending upon the depth of market demand.

Some observations regarding the proforma for this type of project include the following:

- Hard construction costs (excluding parking) represent 47% of total project costs. The cost of parking accounts for an additional 5% of total end unit price. This represents a relatively small component since it is assumed the parking is at grade or structured underneath the units. Underground parking, although it can permit higher densities, results in considerably more cost.
- Total land costs represent roughly 24% of total end unit price – this represents land values of roughly \$900,000 per acre (\$25 per sf buildable) plus some carrying costs. A more dense development, provided it can be successfully marketed, will generally achieve lower land costs per sf, helping to reduce end unit prices (although for a different type of project – smaller unit sizes).
- Understandably, a developer needs to profit from any development at a rate consistent with the risk. Taking into account total project costs of approximately \$7.85 million and assuming a 12% profit margin on the total project (higher when leveraged equity is considered), the required sale price per unit is \$183,000 – translating to \$122 per sf.

Economic Rent/Price Calculation- East Corridor Townhouse Residential **North**

Of note, the generic proforma outlined above can achieve relatively high densities (24 units per acre) and still provide at least one parking space per unit. If required, there may be an opportunity to design additional surface parking, either in front of each unit, on a street or at communal parking lots. A key consideration regarding the market feasibility for this type of development project is the potential demand generated by proximity to the transit corridor. There are clearly a number of cost-competitive housing options in this area. In order to entice existing or new residents to a new development in the North Corridor, the availability of enhanced public transit and associated mixed use development as an amenity will have to be emphasized. The ability to reduce car ownership may also assist with affordability if efficient public transit can be utilized.

Assumptions

Timing Assumptions				
Land Acquisition		01-Jan-08		
Planning Period		4 months		
Construction Commencement		03-May-08		
Construction Period		12 months		
Occupancy		01-May-09		
Total Development Period		16 months		
Interest Rate				
Interim Financing		7.00%		
Building Areas				
Number of Units		48		
Average Unit Size		1,500 sq.ft.		
Number of Storeys		3		
Ground Floor Coverage		24,000 sq.ft.		
Gross Building Area		72,000 sq.ft.		
Site Coverage		0.83 times		
Land Area		2.00 acres		
Residential Units				
	<u>G.B.A.</u>	<u>Avg. Size</u>	<u>G.F.A.</u>	<u>G.L.A.</u>
Bach & 1 Bedroom	0%	0	0	0
2 & 2+ Bedroom	100%	1,500	72,000	72,000
Other	0%	0	0	0
TOTAL	100%	1,500	72,000	72,000 sq.ft.
Parking Ratio				
	1.0 stalls per residential unit			48 stalls

Project Costs

	<u>\$ 000's</u>	<u>Per Unit</u>
Land		
Purchase Price	\$1,800	\$37,500
Additional Land Costs	\$90	\$1,875
Land Carrying Costs	\$176	\$3,675
SUBTOTAL	\$2,066	\$43,050
Construction and Fringe		
Hard Construction Costs	\$4,052	\$84,414
Parking	\$467	\$9,719
Architect. & Engineer.	\$294	\$6,119
Site Improvements	\$261	\$5,445
Const. Contingency	\$226	\$4,707
Municipal Fees	\$11	\$235
Development Interest	\$26	\$542
SUBTOTAL	\$5,337	\$111,181
Sales and Marketing		
Sales Commissions	\$324	\$6,750
Marketing & Advertising	\$120	\$2,500
SUBTOTAL	\$444	\$9,250
TOTAL PROJECT COSTS	\$7,847	\$163,481

Required Price/Rent Calculations

Required Return on Investment	12%
Required Average Sale Price	\$183,099 Unit

Conclusions Regarding Development Analysis

The above proforma analysis demonstrates the required sales price for a new infill townhouse development. When assessing this development proforma, it is important to note it reflects new building costs which generally exceed market affordability for many area residents. In the North Corridor, for example, the income levels (and corresponding homeownership affordability levels) and stock of single-detached housing available for resale, places a considerable constraint on market demand.

The average price of existing homes in the Corridor is comparable to pricing required for many forms of new housing development. The average single detached house price in the North Corridor area was \$234,000, drawn from 2007 sales activity data provided by the Houston Association of Realtors. Based upon proforma results and market analysis of comparable properties, new townhouses require a sales price in the range of \$180,000 to \$200,000 (depending upon unit sizes), which is not far below the cost of a larger, single detached house on a relatively sizeable lot.

With a median household income of roughly \$31,800 across the North Corridor, the affordable house price, at the median, is roughly \$124,000, and the affordable monthly housing rent is \$850 – vastly below the types of prices or rents required to justify new construction. The affordability model incorporates a 6% interest rate, 30 year amortization, 20% down payment, and a calculation of

monthly principal, interest and taxes, with the assumption that 32% of gross monthly income can be dedicated to housing costs.

Of course, some new construction has, and will, continue to take place in this Corridor, catering to a subset of the existing and potential new residents who can afford and are seeking the lifestyle associated with transit oriented development. However, this appears to be only a small niche market at present.

The general inequities between economic feasibility and market pricing for higher density forms of housing suggest the following:

- Transit oriented development along the North Corridor is likely to be incremental. Substantial and broad market demand for transit oriented development will not appear overnight, even with new rapid transit along this corridor.
- New rapid transit along the corridor will likely increase demand, but higher density forms of housing (and subsequently commercial space demand) is likely to remain a niche market that appeals to users which have accepted (and can afford) a more urban housing lifestyle.
- In order to facilitate more rapid development of medium and higher density development along this Corridor, considerable “assistance” might have to be considered – perhaps in the form of financial subsidies for development or ongoing occupancy costs and reduced parking costs.
- Lastly, although it is not explicitly examined in the proforma here, the availability of quality public

schooling is clearly an important criterion within the city for attracting families to higher density forms of housing.

The analysis presented herein describes a generic development proforma. This model neither specifically reflects an existing land parcel, nor the timing of an anticipated project. Additionally, it does not attempt to portray the transit-supportive design standards discussed in earlier sections of this report. Rather, it is intended to illustrate the feasibility of new construction given existing market conditions.

Cost of factors such as wider sidewalk allowances, an increased urban/civic space requirement, building design standards and other considerations are generally more than offset by the saving achieved through the required provision of fewer parking spaces. In conclusion, transit-oriented development policies themselves are not a financial obstacle to new construction.

B2.4

Infrastructure Overview

Based on the research of the existing North Corridor Infrastructure it appears that water mains are at the end of their lifespan for most of the length of the Corridor. Additionally, the dates of construction of the sanitary sewer lines suggests that there are segments along the corridor that have probably reached the end of their life span.

Given that the corridor is a mix of industrial and residential uses, the existing capacity is probably sufficient for redevelopment at higher intensities of use. However, the replacement of aging infrastructure should be carefully monitored.

Areas where new development will occur should be carefully analyzed to assess the increased capacity that might be required based upon the scale of development that is contemplated. Although development in the North Corridor will occur over a long period of time, consideration should be given to replacement of primary infrastructure as the new transit lines are constructed. At a minimum, careful analysis of services should be done within 1600' of a transit station.

It is hoped that a standard for lighting the streets and the pedestrian realm will be implemented throughout all of the corridors as the lines are being built.

North

B 2.5

Design Guidelines for TOD

Introduction

The successful realization of the Urban Corridor Plan requires that the guidelines for new development outlined in this chapter form the basis of the City's new planning regime for Transit Oriented Development. The guidelines clarify the City's expectations and provide the framework for the coordinated and consistent review and evaluation of applications for Transit Oriented Development within the North Corridor.

The guidelines correspond with the Development Opportunity Areas as delineated by the Land Development Concept Plan and provide a series of mandatory requirements and optional guidelines for the design of pedestrian realm; buildings; parking, access and service facilities; and, engineering/infrastructure standards.

The following describes the overarching principles and objectives that form the basis of the guidelines in each of the Development Opportunity Areas:

- **Streetscapes/Pedestrian Realm**

The guidelines for streetscapes are complex and include provisions for the pedestrian realm, which may include public and private lands, and is comprised of sidewalks, publicly accessible and visible open spaces, as well as the paved component of the street (the area between the curbs), including the portion that accommodates the transit facility, and other streets that are important to feed the transit system. In addition, public parks in proximity to the transit facilities require additional attention as key components of the pedestrian realm.

- **Buildings**

The guidelines for buildings include all forms of development on lands considered to comprise the "private realm". The guidelines include provisions for the transition between development within the identified Development Opportunity Areas and the Stable Areas.

- **Parking, Access and Service Facilities**

Parking, access and service facilities have been identified as a vital issue in establishing an urban environment and visually pleasing streetscapes in

conjunction with Transit Oriented Development. In addition, parking is a crucial element in influencing the cost of Transit Oriented Development. Urban development typically requires less parking than suburban forms of development, and also provides opportunities for shared parking. Higher density built form demands parking in structure.

- **Engineering**

One of the primary objectives of the Urban Corridor Plan is to develop a comprehensive approach to development. An important component of that process is to standardize the implementation of engineering design standards.

Development Opportunity Area 1 - Corridor Mandatory

**B2.5.1
Development Opportunity Area 1
Corridor (D0A1)**

Guidelines within the Development Opportunity Area 1 - Corridor include a combination of mandatory development requirements, optional design guides and optional performance standards that, if achieved, make a particular development eligible for a series of additional performance benefits.

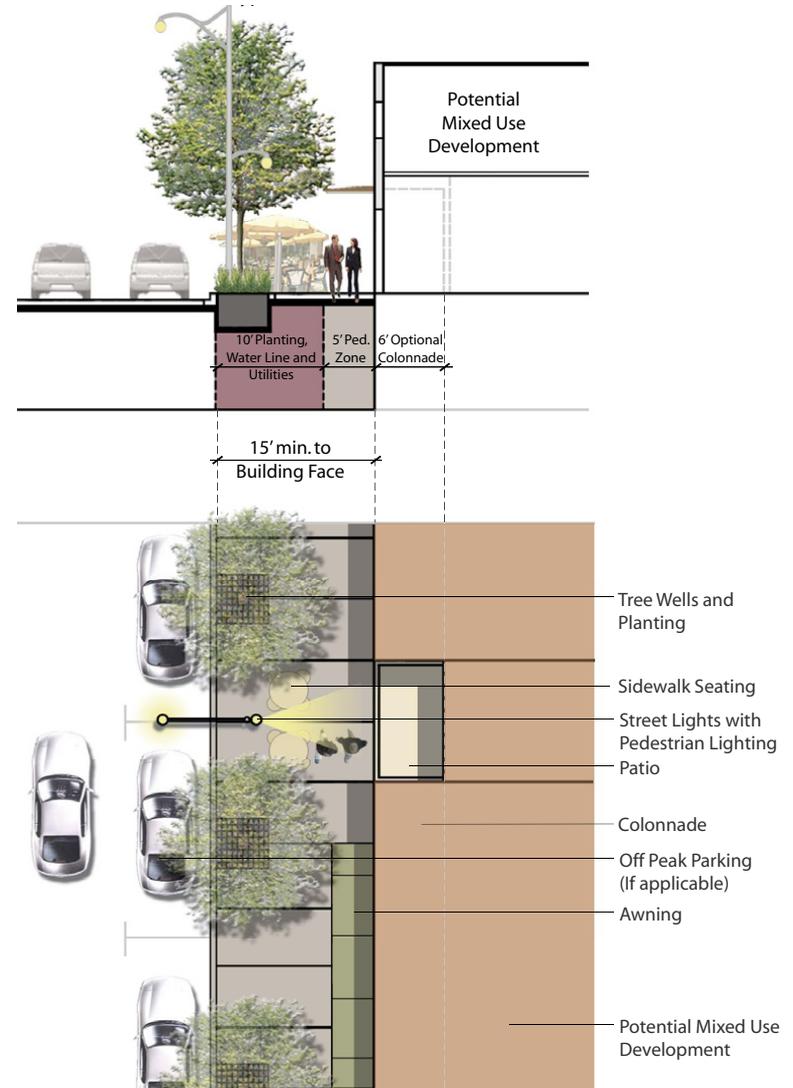
Mandatory
Mandatory Development Requirements within the defined Development Opportunity Area 1.

Statement of Application: Applies on sites that abut the Transit Street and are within 1/4 mile of a transit station

Pedestrian Realm

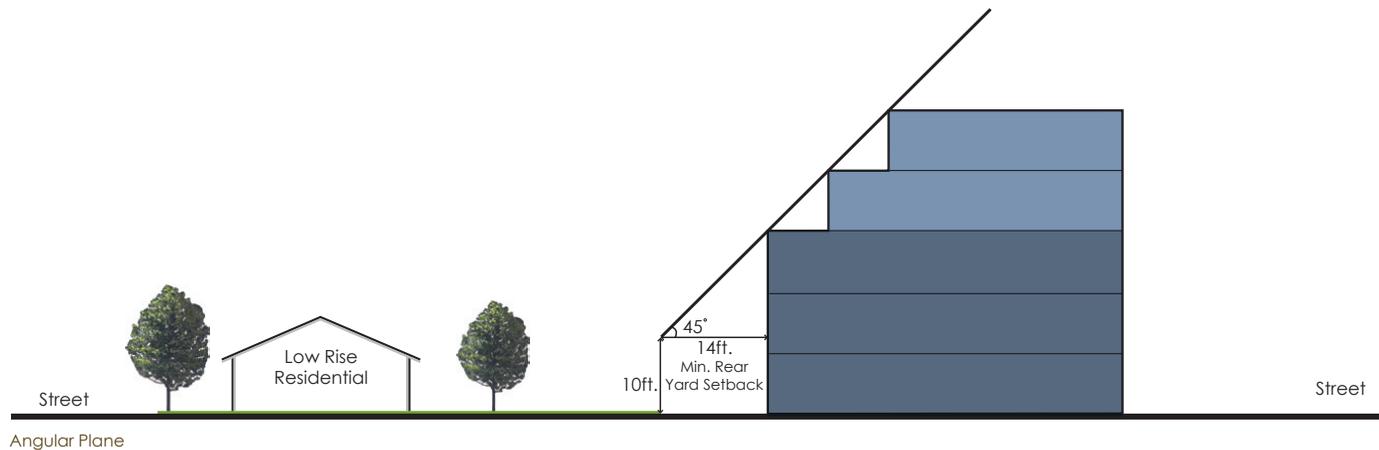
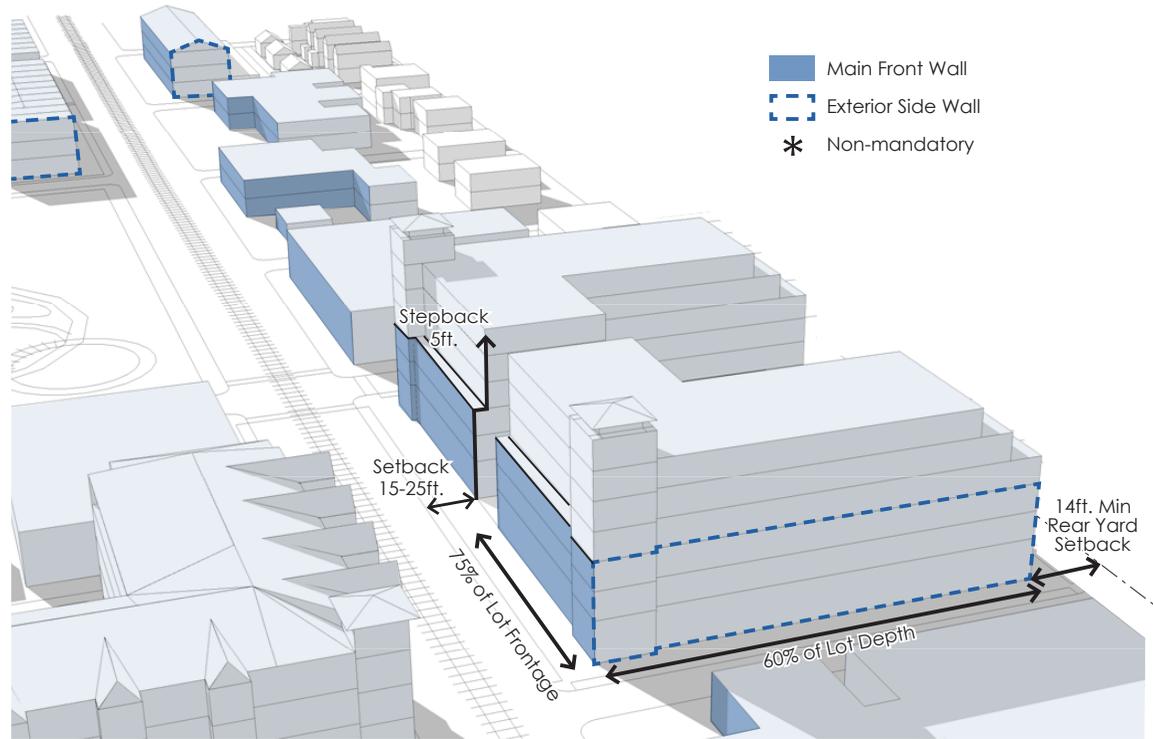
1. All buildings, with the exception of street facing townhouse units, shall be developed with a substantial portion of their front and exterior side façades between 15 and 25' of the back-of-curb. It is understood that where a parcel has three sides abutting a public street, the build-within concept may not be achieved on the third side.
2. Street facing townhouses with no street facing garage shall ensure that the main front wall of the unit be built within 15 and 30' of the back-of-curb.
3. Where front garages are proposed, the main front wall of the building shall be built within 20 and 40' of the back of the curb.

4. The exterior side build-within zone for street townhouses shall be between 15 and 30' of the back edge of the curb.
5. In locations where the public street right-of-way is equal to, or greater than the required 15', the build-within zone shall be established from the edge of the street right-of-way and shall be between 0 and 10'.
6. On corner parcels, the exterior side yard shall also include a build-within zone located between 15 and 25' from the back edge of the curb, and the main exterior side wall shall occupy a minimum of 60% of the depth of the parcel, within the build-within zone. On shallow lots, the City may consider, on a site-by-site basis, an allowance for a rear driveway.
7. In all Transit Street Configurations, 15' from the back-of-curb is required for the pedestrian realm.
8. Where the rear yard or interior side yard of a Transit Oriented Development site abuts a single detached house, an angular plane shall be implemented to control the height of the building. The angular plane shall be established as follows:
 - a TOD site will be evaluated according to an analysis of adjacency and proximity to a threshold level of existing single-family detached homes, transit street frontage, deed restrictions, and other non-discretionary factors. If the site falls within certain criteria, an angular plane determined from a line corresponding to a certain number of feet above grade from the parcel line(s) abutting the single family properties and extending at a certain angle into the subject property from this above-grade line shall establish the maximum height of buildings on the subject site.



Typical Pedestrian Realm Section

Mandatory DOA 1 - Corridor



9. All residential buildings with direct access to dwelling units from the street, shall be elevated a minimum of 2' 6" to provide privacy and a sense of entry to the unit. The maximum elevation from grade to the entrance landing shall be 5'.
10. On all lands fronting onto a public street, a Major Thoroughfare and/or a Major Collector, the minimum built frontage requirement shall be 75% of the parcel frontage and shall be occupied by the main front wall of a building within the build-within zone.
11. Notwithstanding the requirements for a minimum built frontage, where a publicly accessible and usable open space is provided abutting a front and/or exterior side parcel line, the frontage occupied by the publicly accessible and usable open space shall be counted toward the minimum built frontage requirement.
12. A minimum of 75% of the main front wall shall be at grade and, on a corner parcel, an exterior side wall at grade of any non-residential building shall consist of windows and entranceways that facilitate visibility into the building.
13. The City shall not accept cash-in-lieu of required street trees, unless a substantiated technical reason is provided that precludes street tree planting. Where cash-in-lieu of street trees is accepted, the monies received shall be utilized in coordination with the Parks and Recreation Master Plan to enhance tree cover in a local public park, or along the Transit Street within 1/4 of a mile of the development site from which the cash-in-lieu of street trees was accepted.

DOA 1 - Performance Standards Non-Mandatory

Non-Mandatory
 Non-Mandatory Development Requirements within the defined Development Opportunity Area 1.

Performance Standards

Statement of Application: Optional Performance Standards apply on sites within 1/4 mile of a transit station. Developments that achieve all of Performance Standards will be eligible to utilize Performance Benefits as defined.

Development Blocks

- 14.** For all large scale Transit Oriented Development projects (defined as projects on development blocks or parcels that are greater than 5 acres in size), the maximum development block or parcel size shall be approximately 5 acres in area. In all cases, there shall be no minimum development block or parcel area.
- 15.** No development block or parcel frontage on a street shall exceed 600'. In all cases, the minimum development block or parcel frontage shall be 25'.
- 16.** Large scale Transit Oriented Development projects shall provide public streets, or publicly accessible private streets, to subdivide any development block or parcel greater than 5 acres in size into smaller development blocks or parcels in accordance with this policy.

Buildings

- 17.** The minimum density for any Transit Oriented Development project shall be a Floor Area Ratio of 1.00.
- 18.** There shall be no specified maximum density.

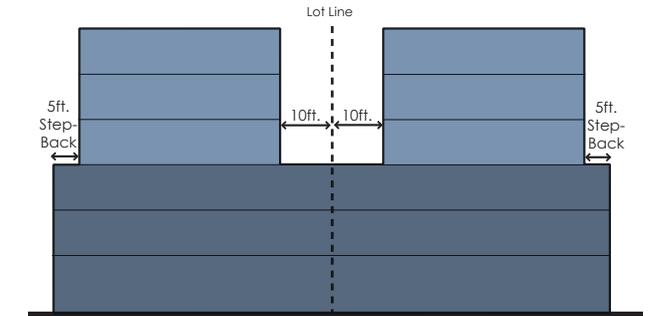
- 19.** The minimum height for any Transit Oriented Development building shall be two stories, or 18', whichever is greater. Buildings on corner sites shall be a minimum of three stories, or 27', whichever is greater.
- 20.** There shall be no specific height limit.
- 21.** Where any Transit Oriented Development building abuts a street, the building height shall be established as follows:
 - ▣ the main front wall and/or exterior side wall shall be permitted up to three stories (or 27', whichever is greater) within the corresponding build-within zone; and,
 - ▣ for any main front wall and/or exterior side wall above three stories (or 27', whichever is greater), the building shall be stepped back from the main front wall and/or the exterior side wall of the base building by a minimum of 5'.
- 22.** Buildings of up to three stories may be built with zero setbacks to interior side parcel lines. Exterior side yards shall conform to the described build-within zones.
- 23.** Buildings above three stories may include a zero interior side yard setback for the base building of three stories, but building side walls must be set back a minimum of 10' from the interior side yards for that component of the building above three stories.
- 24.** The City will encourage a transitional rear alley or easement process, coupled with access management from pedestrian and Transit Streets, on a block-by-block basis, where possible and appropriate.



Street Wall Building, Toronto, Canada



Streetscape/Pedestrian Realm, Bethesda, MD



Space between Buildings

Non-Mandatory DOA 1 - Performance Benefits



Restaurant seating - Temporary encroachment, Bethesda, ML



Colonnade, South Lake, TX



Public parking garage in a private condominium, Toronto, Canada

Encroachments

- 25. Permanent encroachments shall be considered for permitting on a site-by-site basis, subject to design performance standards (to be developed) that consider such features as shade / weather protection, pedestrian clear zone width, space for street tree canopy, right-of-way proportions, utility clearances, etc.
- 26. The amount of any permitted encroachment shall be established by the City on a site-by-site basis, and in consideration of the following criteria: the encroachment enhances pedestrian comfort by providing shade and/or protection from the rain; and, the encroachment does not impede pedestrian movement, and maintains an unobstructed sidewalk area of a minimum width of 5'.

Parking

- 27. General public parking (surface lots and / or structured parking facilities) to serve TOD areas will be provided to augment the supply of parking.
- 28. On-street parking shall be promoted within all of the Urban Corridors.
- 29. The City shall pursue opportunities for the establishment of on-street parking in partnership with adjacent landowners where the spaces are provided on a combination of public land and private property, with public access to the parking spaces secured through agreements with the City.
- 30. Surface parking, loading areas, drive-through lanes and servicing facilities shall not be permitted in front of Transit Oriented Development buildings. Surface parking, drive-through lanes and/or servicing facilities may be permitted in an interior side yards, and are permitted within the rear yard.
- 31. Surface parking, loading areas, drive-through lanes and servicing facilities, where permitted, shall be appropriately screened from view from the street. Surface parking lots shall respect the build-within

zones. Where surface parking must be provided, the visual impact of large surface lots shall be mitigated by a combination of setbacks, and significant landscaping including: pavement treatments, low walls or decorative fencing, landscape, trees and lighting throughout parking lots and along the edges.

- 32. Parking is encouraged to be provided in structures, either above, or where possible, below grade. Where a parking structure is above grade, it shall include a façade with active uses at grade and appropriate architectural articulation. Entrances to below grade or structured parking and service areas should occur within the building.
- 33. Access to parking and servicing areas should occur off side streets or service lanes and to the side or rear of buildings, where possible.
- 34. It is an objective of the City to limit access driveways to individual sites adjacent to the Transit Street. The City shall encourage shared access driveways and, preferably, shared rear lane access for all Transit Oriented Development. Where new development is proposed, the City shall require a minimum of 100' between access driveways onto the Transit Streets.

Performance Benefits

Statement of Application: Performance Benefits are available to developments within ¼ mile of a transit station that achieve all of the Performance Standards and generate no undue adverse impacts on the stability of adjacent Stable Areas.

Parking

- 35. For all retail and service commercial uses, including restaurants - a minimum of 2.0 and a maximum of 4.0 spaces/1,000 sf of Gross Leaseable Floor Area; reductions in current parking standards to this minimum shall be graduated over time.

DOA 1 - Design Guidelines **Non-Mandatory**

- 36.** For hotels/inns - a minimum of 1.0 and a maximum of 1.25 spaces per room.
- 37.** For all office uses - a minimum of 2.0 and a maximum of 3.0 spaces/1,000 sf of Gross Leaseable Floor Area.
- 38.** For all condominium-based residential uses, a minimum of 1.0 and a maximum of 1.75 spaces per unit, inclusive of visitor parking.
- 39.** For all fee simple residential uses – a minimum/maximum of 2.0 spaces per unit.
- 40.** Where a public parking facility is developed, Transit Oriented Developments within 300' the City may reduce the minimum parking requirement, in recognition of the enhanced public parking supply. The reduction of the minimum parking requirement shall be determined by the City on a case-by-case basis.
- 41.** Parking requirements for any individual development do not necessarily need to be provided on the same parcel, or on a parcel contiguous to the development. Required parking for any Transit Oriented Development may be provided on any parcel within 300' of the development that is being served by the parking facility.
- 42.** Where a Transit Oriented Development is unable, or does not wish to provide all of the required parking spaces, the City may accept cash-in-lieu of the parking spaces. The minimum parking requirement shall be used to calculate any parking space deficiency. The cost of each parking space shall be established by the City, and may be waived for any specific development, at the discretion of the City. The funds raised through this provision shall be utilized by the City's Parking Authority solely for the purchase of property for public parking and/or the building of public parking structures in proximity to the Transit Street where the fees were collected.

Design Guidelines

Statement of Application: Non-mandatory development guidelines.

Pedestrian Realm

- 43.** Buildings shall be connected to the street - by proximity, by the location of windows and entranceways, and the level of architectural detail.
- 44.** Buildings shall be sited and organized to create a street space scaled to the pedestrian, and organized to present an appropriate façade to all adjacent streets to provide interest and comfort at ground level for pedestrians.
- 45.** Main building entrances shall, wherever possible, be oriented toward adjacent streets to provide convenient access to pedestrians and public transit; buildings, and their main public entrances, shall be located close to the front and exterior side property lines, on-street parking, and the public sidewalk.
- 46.** Buildings are to be generally sited parallel to the public street and along the edges of parks and open spaces. The public faces of these buildings are to align with neighboring buildings in a manner that defines these spaces with a consistent building face lining the street.
- 47.** Non-residential buildings shall, to the greatest extent possible, front onto adjacent streets, be flush with grade and provide an active use at grade in order to promote pedestrian activity.
- 48.** Buildings shall provide active façades that include windows and entry features and, where appropriate, outdoor cafés and restaurants, community services, retail stores and display windows.
- 49.** Street tree planting should form a continuous canopy along the street. Tree species should be selected by the applicable TIRZ/MMD to reinforce the role of the various street hierarchies within the



Public parking garage, South Beach, FL



Michigan Avenue, Chicago, IL

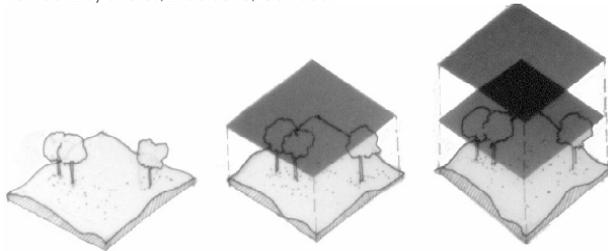


Pedestrian activity, Toronto, Canada

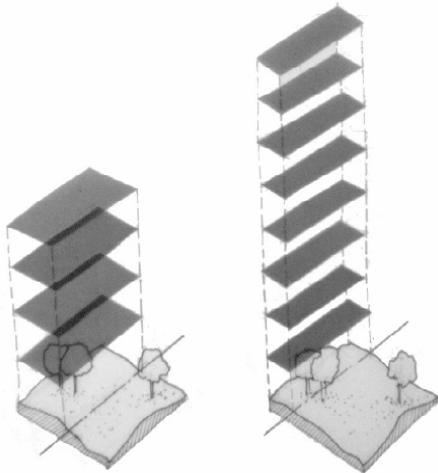
Non-Mandatory DOA 1 - Design Guidelines



Humber Bay Shores, Etobicoke, Canada



Site, FAR of 1.0 means that the total floor area of a building is one times the gross area of the lot. FAR of 2.0 means the floor area is two times the gross area of the lot



Cover 50% of the lot, at FAR of 2.0 and the building is 4 stories. Cover 25% of the lot at 2.0 and the building is 8 stories.

Urban Corridors and to visually and thematically distinguish the Urban Corridors from one another. In instances where no TIRZ/MMD exists, the City will select the trees that they will plant.

50. Street trees should have a minimum size of 45 gal. and be planted 30' on-center. Trees should be located in open planting pits where space permits and with wells sized at a minimum of 5'x10'. The planting pits should be filled with shrubs, perennials and annual plants. Planting pits should be edged with a low wall and/or fence.
51. Where space is limited, trees should be planted in continuous trenches. The rootball should be protected with a tree grate, ground cover or material such as gravel.
52. Where there is no room for street trees, consider a vertical shade element planted with vines to add special landscape treatment to the street.
53. Coordination of utilities, especially overhead power lines will be required during the design phase of street tree planting.
54. Consider a palette of the street furnishings, newspaper boxes, notice boards, bicycles racks, flower pots, luminaires and poles that will visually and thematically distinguish the each particular Urban Corridor from the others.
55. Concentrate mailboxes, vending machines, trash cans, and recycling bins in single locations to create active public space and minimize visual clutter.

Public Parks

56. Provide public amenities such as washrooms and field house where appropriate.
57. Provide programmed activities for a range of ages and demographics with emphasis on children and youth.

58. Provide a balance of passive and active park space and provide for the maximum program flexibility in the design of the parks.
59. Incorporate a greening strategy that includes tree planting and seasonal horticultural displays.
60. Incorporate sustainability practices both in terms of capital projects and operations.
61. Provide wayfinding and program information displays as well as heritage interpretation and public art.

Gateways

62. Gateways shall be either architectural, stand-alone features, or landscape treatments that define the main entrances to the Urban Corridors.
63. Features shall be lit to enhance their legibility at night.
64. The scale of the gateway shall be large enough to be visible from a car at a distance of at least 300'.
65. Gateways shall enhance and not compete with surrounding existing architectural and natural features.

Buildings

66. Corner building designs shall articulate, define and enhance the intersection at which it is located by enhancing the building's presence at each corner.
67. Buildings should 'turn' the corner, i.e. they should have primary, articulated façades towards both streets and should be visually different from adjacent development.
68. Large areas and continuous rows of monotonous and repetitive façades shall be avoided. A more textured architectural quality can be achieved by introducing variation in certain elements of the façade treatment.

DOA 1 - Design Guidelines **Non-Mandatory**

- 69.** Variation in three-dimensional elements, such as balconies, bay windows and porches, cornices, window trim, entrances and the articulation of the building mass, shall be used to create a dynamic façade.
- 70.** Variation and articulation in the building mass including horizontal and vertical setbacks, such as step backs at the upper stories, shall be established.
- 71.** A pedestrian weather protection system including awnings, canopies, colonnades, or front porches along the sidewalk edges and adjacent to the urban squares/plazas and at entrances to buildings shall be considered. The City will promote Temporary or Permanent Encroachment Permits for both signage and awnings.

Signage and Lighting

- 72.** Signage will address the amount and type of illumination, size, materials, typography and design.
- 73.** Signage should be an integral part of the architecture of a building.
- 74.** Signs should be designed to complement the building and enhance the visual appeal of the street.
- 75.** Signs should be designed in consideration of nearby residential uses, in terms of size, materials, and location.
- 76.** The ratio of sign band to building mass should be restricted such that the signage does not dominate the façade.
- 77.** Mobile box signage is not allowed.
- 78.** Neon lights are allowed when they do not dominate the signage and have no negative impacts on nearby residences.

- 79.** Exterior lighting shall be designed to promote pedestrian comfort, safety and provide a high quality ambiance. In addition, accent lighting is required to emphasize built form and landscape elements. Pedestrian scale lighting shall be provided adjacent to streets, walkways, pedestrian routes, and in parks and courtyards.
- 80.** Internally lit canopies are strongly discouraged.
- 81.** Commercial façades should be appropriately lit.
- 82.** Pedestrian realm signage and lighting should be coordinated. Pole mounted pedestrian light fixtures with a light source at 12 to 15' high and a spacing of 30 to 50' is recommended.

Mid-Block Pedestrian Connections

- 83.** Mid-block pedestrian connections shall be provided within larger development parcels. These are intended to be designed as pedestrian landscaped lanes and should be lit, landscaped and maintained for public.
- 84.** Mid-block pedestrian connections shall provide a fine grain of pedestrian circulation and an important connection between two streets.
- 85.** Mid-block pedestrian connections shall lead to public destinations such as schools, parks and public transit stations.
- 86.** Mid-block pedestrian connections shall provide an address to individual residential or business frontages along their lengths.



Pedestrian weather protection, Bethesda, ML



Signs, Winter Park, CO



Mid-block pedestrian connection, Houston, TX

Non-Mandatory DOA 1 - Design Guidelines

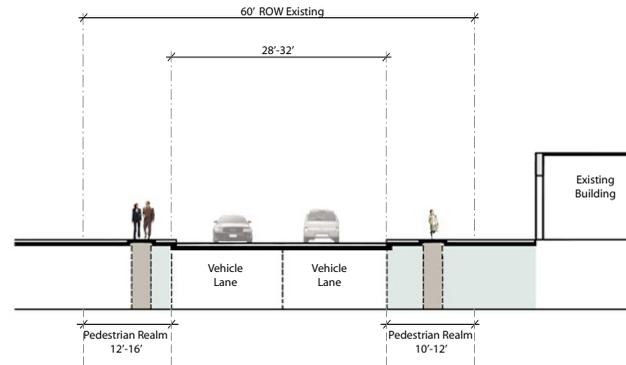
B2.5.1.a Pedestrian Character Transit Street

To better understand the urban design impact of the new transit on the existing streetscapes, sections have been developed through various locations along the North Corridor illustrating the existing condition of the street from the face of buildings on each side. A section showing the new streetscape has been constructed as a comparison. The sections have been selected to indicate typical conditions of the Transit Street to show the impact of the LRT.

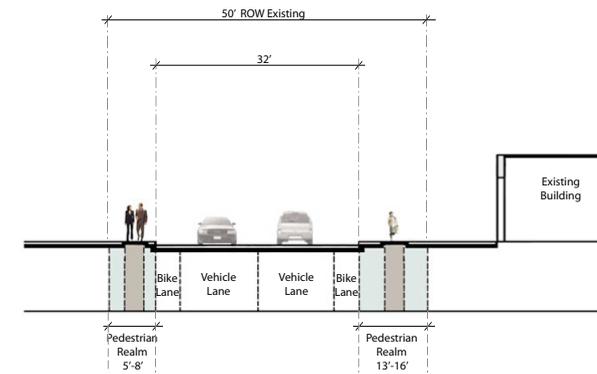
Additionally, sections have been developed to illustrate the existing and proposed improved pedestrian realm conditions of connecting streets. The importance of these streets as primary pedestrian ways cannot be overstated. These streets are envisioned as the principle links between the Transit Street and the surrounding neighborhoods as well as the location of bus routes.

The Transit Street sections for the North Corridor have been taken at Boundary Street where it meets Gentry Street and Fulton Street at Irene Road. Both existing rights of way are narrow; therefore, accommodating transit, cars and the pedestrian realm is difficult.

The new section at both streets accommodates one lane of traffic in each direction with the transit at the center. The pedestrian realm is shown as a 15' wide zone that accommodates utilities, trees and sidewalks. Buildings are at the edge of the pedestrian realm and result in an urban cross section that is at a comfortable pedestrian scale.



North Corridor existing section - Boundary St. at Gentry St.



North Corridor existing section - Fulton St. at Irene Rd.

DOA-1 - Pedestrian Character Transit Street, Offset Station Platforms North



North Corridor proposed section - Boundary St. at Gentry St.

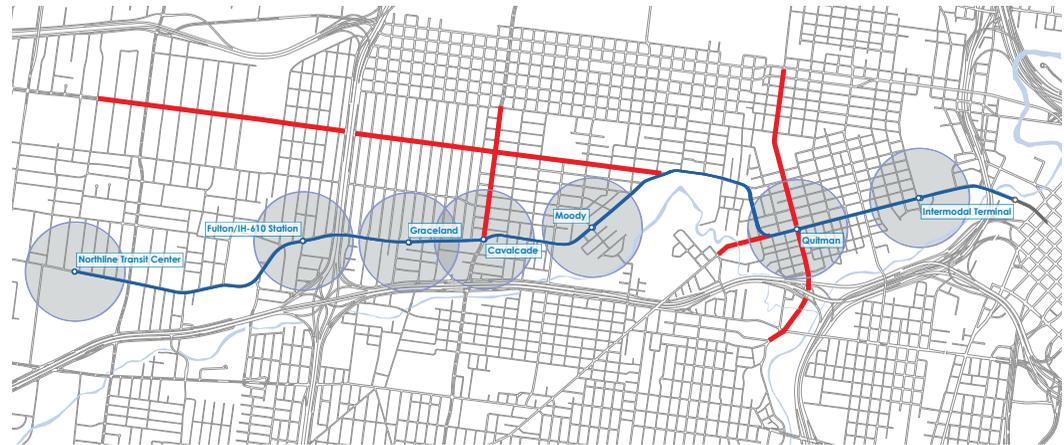


North Corridor proposed section - Fulton St. at Irene Rd.

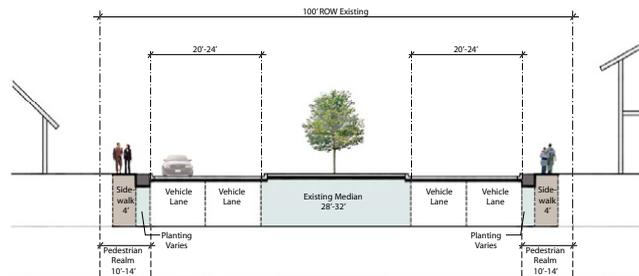
Non-Mandatory DOA 1 - Design Guidelines

B2.5.1.b Pedestrian Character Major Thoroughfare

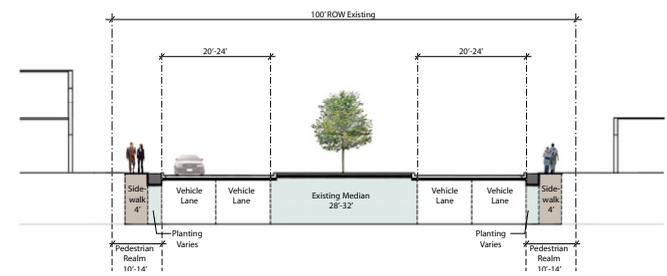
87. The hard surface of the sidewalk (the pedestrian realm) shall be a minimum of 15' wide, measured from the back-of-curb to the main front wall and/or exterior side wall of any adjacent building. This requirement may include components of the public right-of-way and/or private lands, as described in the discussion of the build-within zone.
88. The design of the 15' pedestrian realm shall include a "furnishing zone" for utilities, street furniture and street lighting adjacent to the curb, and a minimum 7' 6" unimpeded pedestrian sidewalk.
89. At all street intersections there shall be provisions for pedestrian crossings of the transit facility, regardless of whether or not the intersection is signalized. In addition, provisions for mid-block pedestrian crossings must be considered at intervals of approximately 300'. There shall never be a condition where distances between pedestrian crossings of the facility exceed 600'. Countdown pedestrian head signals shall be provided for at all signalized crossings.
90. It is understood that the development of the required 15' pedestrian realm will occur over a long period of time, in conjunction with private sector redevelopment projects. In the interim, the City should build a connected sidewalk on the public component of the right-of-way concurrent with the development of the transit facilities. The maximum width of the pedestrian realm in this interim condition shall be 15', to be measured from the back-of-curb to the edge of the right-of-way.



Pedestrian Character Major Thoroughfares



North Corridor existing conditions - residential area, Cavalcade St.



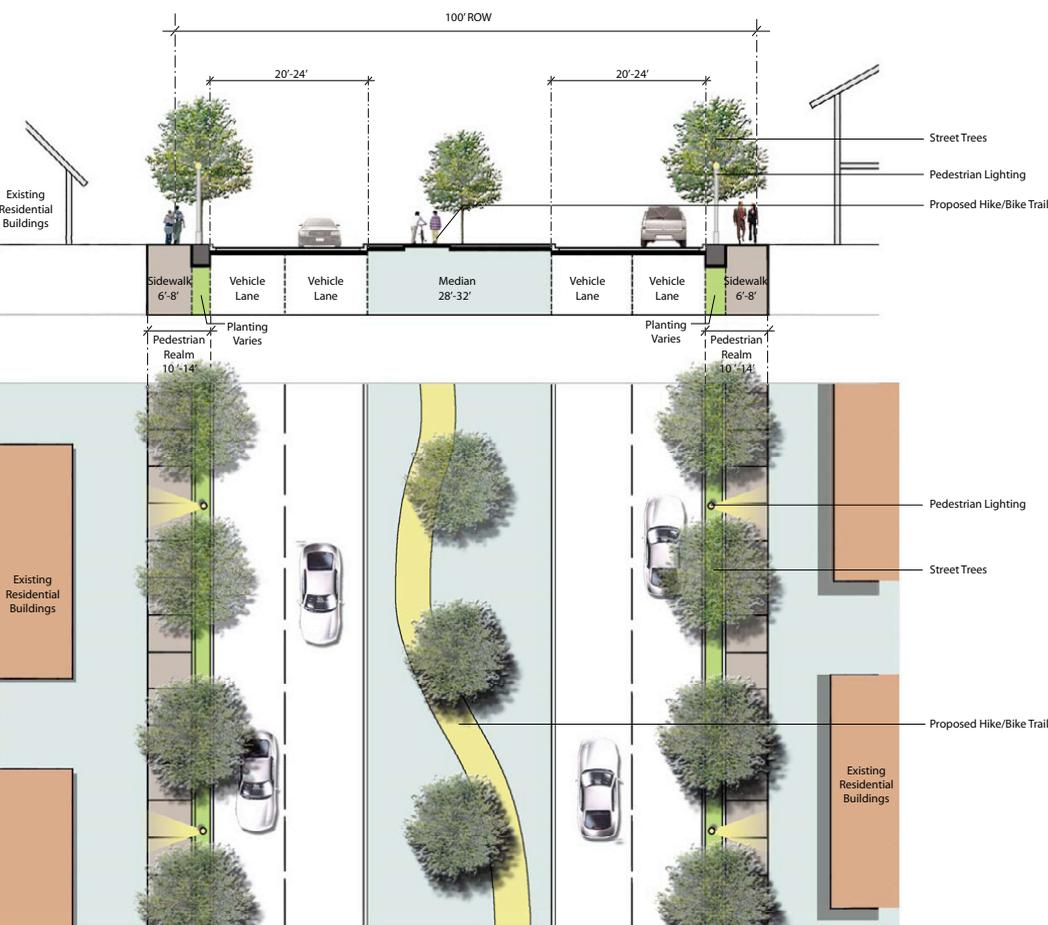
North Corridor existing conditions - commercial area, Cavalcade St.

DOA-1 - Pedestrian Character Major Thoroughfare, Commercial North

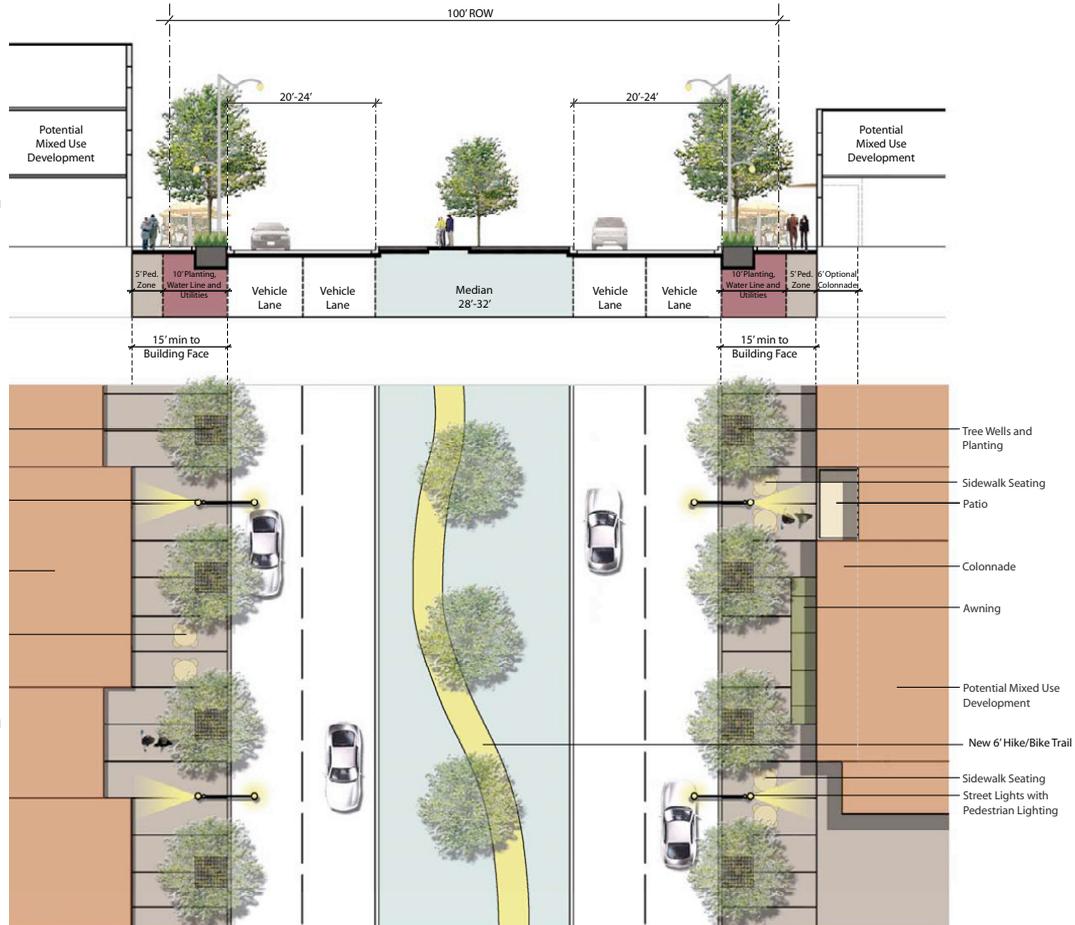
Major Thoroughfare rights-of-way are typically 80 to 100', and include 48' of pavement divided by a median of 14 to 32'. Rarely has a connected sidewalk system been provided. Major thoroughfares that intersect with the

Transit Street have been identified as Pedestrian Character Major Thoroughfares because they have the potential to provide a crucial connection from area focal points, such as neighborhoods and schools, to transit stations.

A continuous and connected sidewalk system been provided. A prototype street cross section indicates the following:



North Corridor proposed section - 100' ROW - Cavalcade St. - residential area



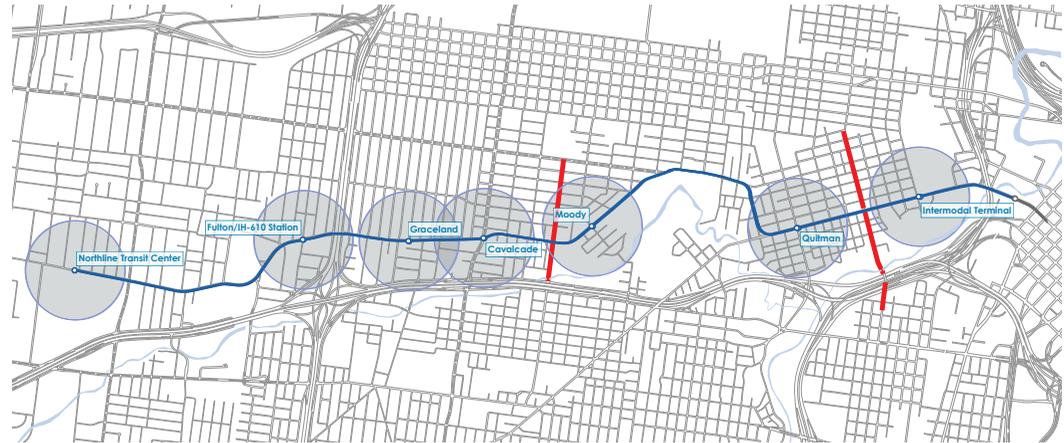
North Corridor proposed section - Cavalcade St. - commercial area (only in designated redevelopment areas)

Non-Mandatory DOA 1 - Design Guidelines

**B2.5.1.c
Pedestrian Character Major Collector**

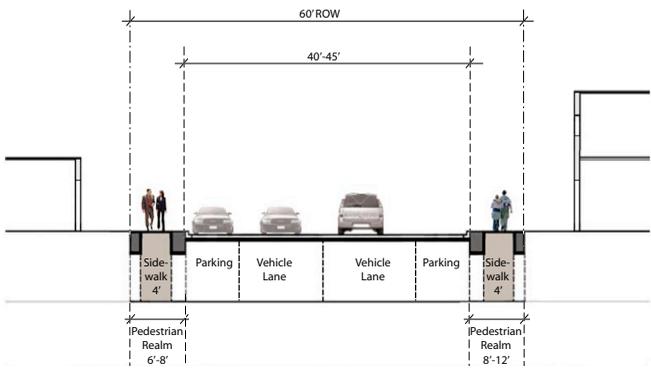
- 91. The pedestrian realm shall be a minimum of 8' wide, measured from the back-of-curb to edge of the right-of-way.
- 92. The pedestrian realm shall include a minimum 6' wide sidewalk measured from the edge of the right-of-way. The sidewalk shall be continuous and extend across driveways.
- 93. The pedestrian realm shall include a planted boulevard with street trees next to the curb.
- 94. The planted boulevard should also be the location for utility poles, placed on the same alignment as the street trees.

Major Collectors range from 60-80', and include 44' of pavement, and ditches on both sides. Rarely is a continuous and connected sidewalk provided. Hogan Street has been identified as a Pedestrian Character Major Collector because it is an important parallel street to the Transit Street and edge to neighborhoods. A prototype street cross section indicates the condition:

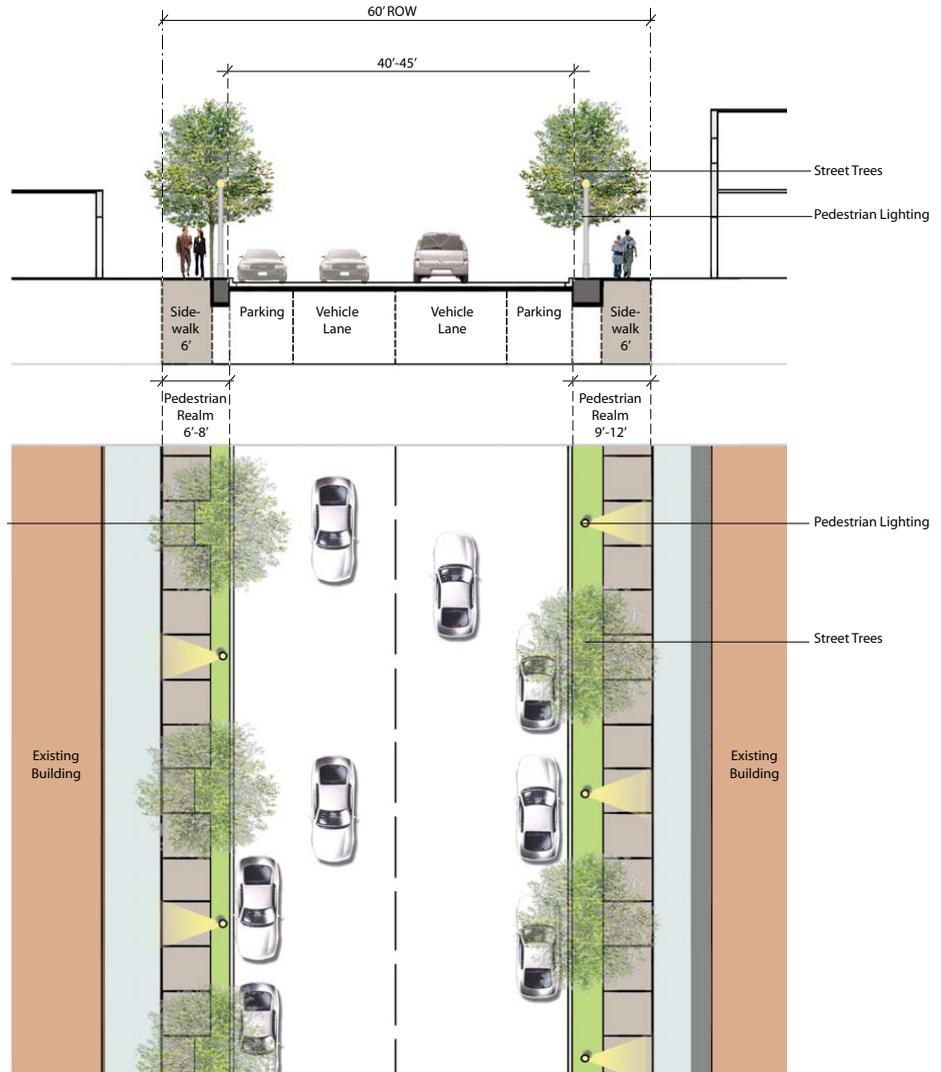


Pedestrian Character Major Collector

DOA 1 - Pedestrian Character Major Collector North



North Corridor existing conditions - Hogan Street



North Corridor proposed section - Hogan Street

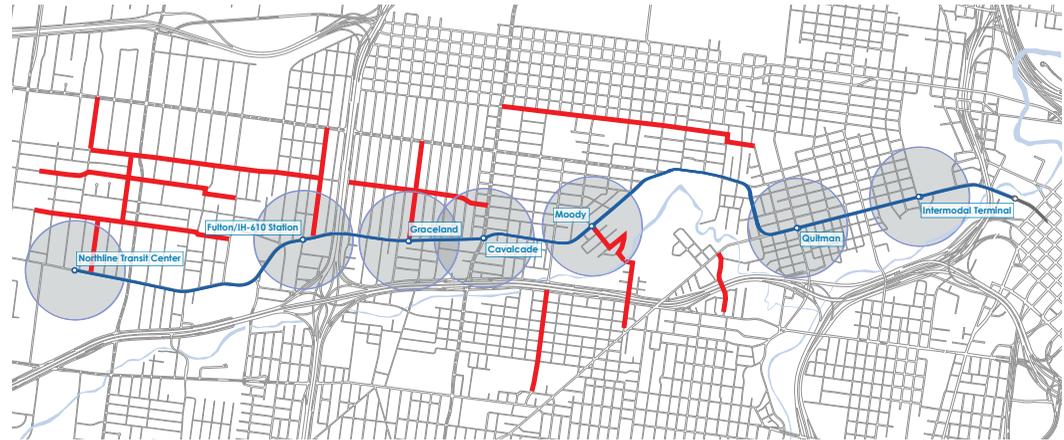
Non-Mandatory DOA 1 - Design Guidelines

A2.5.1.d

Pedestrian Character Local Street

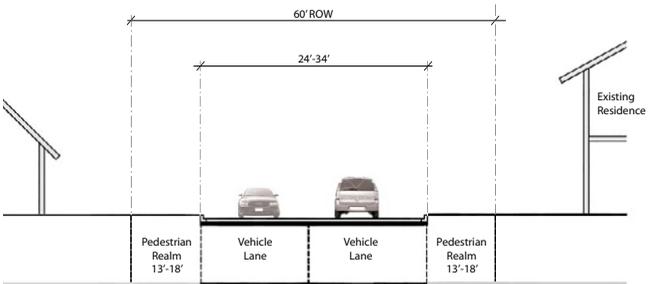
95. The pedestrian realm shall be a minimum of 19' wide, measured from the back-of-curb or the edge of the outside vehicle lane to the edge of the right-of-way.
96. The pedestrian realm shall include a minimum 6' wide sidewalk. The sidewalk shall be continuous and extend across driveways.
97. On Pedestrian Character Local Streets with curbs, the pedestrian realm shall include a planted boulevard with street trees next to the curb.
98. The planted boulevard shall also be the location for utility poles, placed on the same alignment as the street trees.
99. On Pedestrian Character Local Streets with road side ditches, the tree shall be planted on the outside edge of the ditch adjacent to the sidewalk.
100. On Pedestrian Character Local Streets with road side ditches, utility poles shall be placed adjacent to the edge of the right-of-way.

Local street rights-of-way are typically 60', and include 22' of pavement. Some local streets have ditches on both sides. Rarely are sidewalks provided. Some local streets that intersect with the Transit Street have been identified as Pedestrian Character Local Streets because they have the potential to provide a crucial connection between the transit stations and a local pedestrian traffic generator, such as a school, recreation center, public park or place of worship. A prototype street cross section for a Pedestrian Character Local Street with and without a ditch indicates the following:

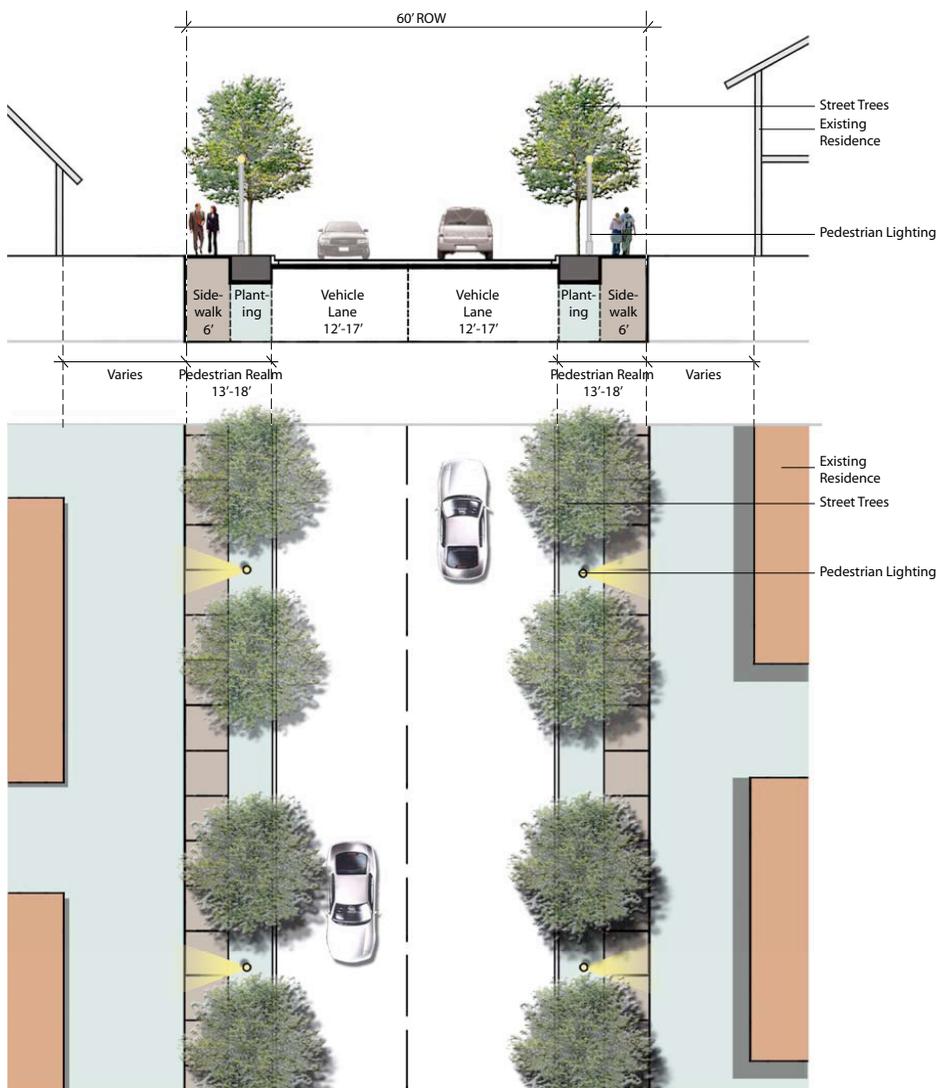


Pedestrian Character Local Street

DOA-1 - Pedestrian Character Local Street Cross-Section/Plan **North**



Local street - existing section at Graceland Street



North Corridor proposed section - Graceland Street

Non-Mandatory DOA 1 - Design Guidelines

Engineering / Infrastructure

- 101.** The width of travel lanes along streets with transit should generally be 10-11' in width,
- 102.** Alleys should be designed to provide a 12'-0" paved surface,
- 103.** No access should be allowed from the street for new developments fronting onto the street with transit,
- 104.** All new development fronting on to streets with transit should indicated space for the provision of alleys or access to the site from side streets.
- 105.** A plan for access to sites fronting onto the Transit Street should be developed by the proponent before construction of the Transit Line showing the following:
 - ▣ The preferred location for access into site along the line.
 - ▣ A phasing plan for combined access over time.
 - ▣ A phasing plan for the implementation of alleys or service lanes.
- 106.** Provision for crosswalks between stations should be an integral part of the design of the streets with transit. The maximum distance between a station and a crosswalk shall be 1/4 of a mile.
- 107.** The radius of corner conditions should be determined with the pedestrian in mind. Tighter radii corners slow traffic speeds and protect pedestrians.
 - ▣ Along the streets with transit corner radii through streets should be no more than a 25'-0" radius.
 - ▣ For non-through streets intersecting the Transit Street corner, radii should be reduced to 20'-0".
- 108.** Bicycle lanes should be explored as part of the design, access and phasing plans for the corridor streets. Where there is not enough room for bike lanes on Transit Streets, they should be part of the design of the connector streets that access stations.
- 109.** Infrastructure services need to be developed with future intensification of the corridors in mind,
- 110.** Infrastructure should be implemented as transit is being built.
- 111.** The implementation and design of infrastructure should be carried out comprehensively by including all departments of the City, as well as utility providers.
- 112.** All utilities should be buried along the corridors.
- 113.** Consideration should be given to burying utilities under alleys.
- 114.** Where it is impossible to bury utilities, the location of above ground components must be coordinated with the design of the pedestrian realm following the following guidelines:
 - ▣ Utility poles and transformers shall be located where they do not impact on the movement of pedestrians.
 - ▣ Utility poles and transformers shall be located according to an overall plan for the entire corridor.
 - ▣ The form and design of above grade components to be approved by the City and Metro.
- 115.** Accessibility should be designed into all sidewalk conditions along the corridors.

