STATION PLAN ALTERNATIVES

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION AREA PLAN ALTERNATIVES

MILESTONE #2

ALTERNATIVE 1

- Commercial 57,000 gsf
- Park & Open Space Yes
- Redevelopment of Existing No

- STATION AREA TYPOLOGY:
  NEIGHBORHOOD GENERAL TYPE 2

(assumes even distribution of program throughout transit shed)

ALTERNATIVE 2

- Commercial 145,000 gsf
- Park & Open Space Yes
- Redevelopment of Existing No

- STATION AREA TYPOLOGY

OFFICE INDUSTRIAL DISTRICT

(assumes even distribution of program throughout transit shed)

REFINEMENT OF STATION AREA PLAN ALTERNATIVES

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION PLAN ALTERNATIVES – REFINEMENT OF STATION PLAN ALTERNATIVES

1: Neighborhood Center Type 1

1: Neighborhood Center Type 1

- Residential 1,900 Units (1,000 S.F./Unit)
  - 1,600 New Build Units
  - 300 Renovated Units
- Retail 310,000 S.F.
- Office 1,000,000 S.F.
- Park & Open Space Yes
- Redevelopment of Existing Yes

- STATION AREA TYPOLOGY
  NEIGHBORHOOD CENTER TYPE 1

2: Business District

- Residential 1,000 Units (1,000 S.F./Unit)
  - 700 New Build Units
  - 300 Renovated Units
- Retail 310,000 S.F.
- Office 2,000,000 S.F.
- Park & Open Space Yes
- Redevelopment of Existing Yes

- STATION AREA TYPOLOGY:
  BUSINESS DISTRICT

STATION AREA PLAN ALTERNATIVES

STATION PLAN ALTERNATIVES – BIRD'S EYE VIEWS

Residential
Office
Commercial
Mixed Use

1: Neighborhood Center Type 1

2: Business District

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

WORK TO DATE

B.6 Economic Analysis of Station Area Plans

WORK TO DATE

B.8 Preferred Station Area Plans

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

- KINGSHIGHWAY STATION ...PREFERRED...

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

TOD REGIONAL FRAMEWORK PLAN	STATION TYPOLOGY		
DOWNTOWN TYPOLOGY	CBD/SPECIAL DISTRICT Intensity: >21,000 Use Mix: 0.5 - 1.5		DISTRICTS
MAJOR URBAN CENTER TYPOLOGY	BUSINESS DISTRICT Intensity: >21,000 Use Mix: 0.5 - 1.5		DISTRICTS
	OFFICE/INDUSTRIAL DISTRICT Intensity: >21,000 Use Mix: 0.5 - 1.5		DISTRICTS
NEIGHBORHOOD TYPOLOGY	NEIGHBORHOOD CORE Intensity: >21,000 Use Mix: 0.5 - 1.5		CENTERS
	NEIGHBORHOOD CENTER Intensity: >21,000 Use Mix: 0.0 - 0.5	TYPE 2	CENTERS
	NEIGHBORHOOD CENTER Intensity: 7,000 - 21,000 Use Mix: 0.5 - 1.5	TYPE 1	CENTERS
	NEIGHBORHOOD GENERAL Intensity: 7,000 - 21,000 Use Mix: 0.0 - 0.5	TYPE 3	NEIGHBORHOODS
	NEIGHBORHOOD GENERAL Intensity: <7,000 Use Mix: 0.5 - 1.5	TYPE 2	NEIGHBORHOODS
	NEIGHBORHOOD GENERAL Intensity: <7,000 Use Mix: 0.0 - 0.5	TYPE 1	NEIGHBORHOODS
SUBURBAN TOWN CENTER TYPOLOGY			
CAMPUS/SPECIAL DISTRICT TYPOLOGY			

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION AREA PLAN ALTERNATIVES

Neighborhood General Type 3

Kingshighway Station:

- North eastern quadrant of station area primarily Industrial Land Use, making up 25% of the area within the transit shed
- Remaining three quadrants, or 75% of area within transit shed occupied primarily by residential land use.
- Large, long blocks are not walkable or conducive to integrated bike network
- Significant vacancy but also presence of strong residential neighborhoods.

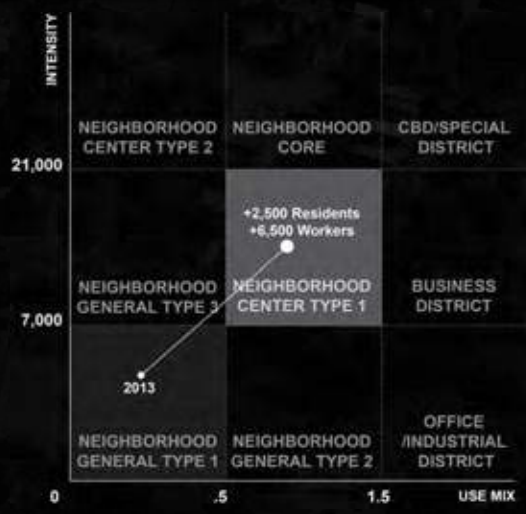
TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION AREA PLAN ALTERNATIVES
Neighborhood General Type 3

Shifting the Typology

- Add 2,500 Residents and 6,500 workers in New and Redeveloped buildings



TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION AREA PLAN ALTERNATIVE
CHEROKEE STATION
Neighborhood Center Type 1

DEVELOPMENT PROGRAM

- Redevelop 450 households on vacant land and in vacant buildings

Vacant Plot
Plot with Vacant Building

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

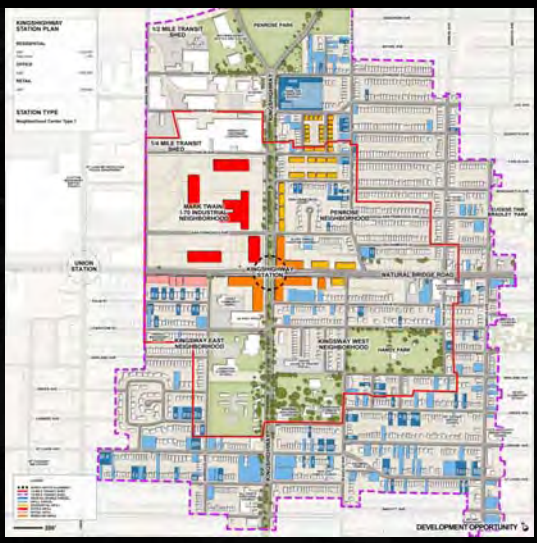
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION AREA PLAN ALTERNATIVE
CHEROKEE STATION
Neighborhood Center Type 1

DEVELOPMENT PROGRAM

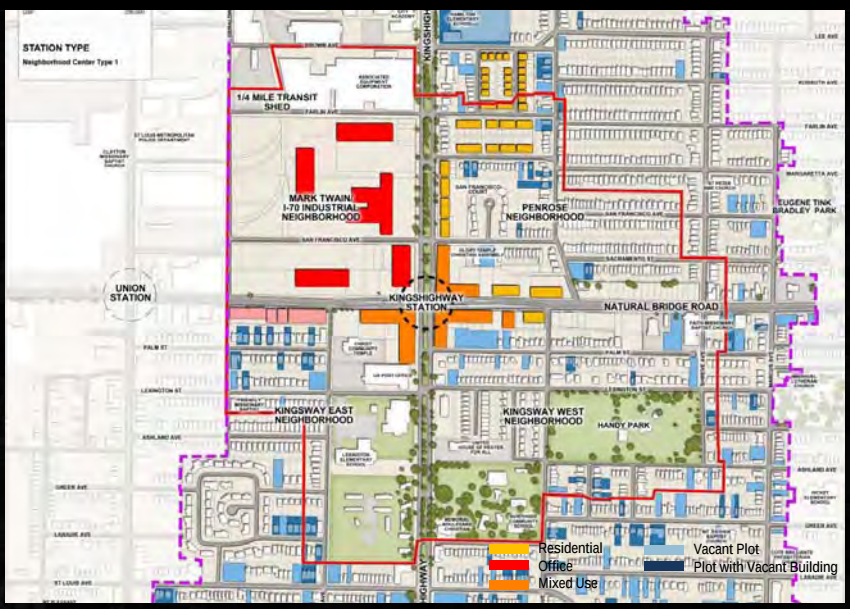
- Residential 1,100 Units(1,000 S.F./Unit)
  - 550 New Build units
  - 450 Renovated units
- Retail 285,000 S.F.
- Office 1,000,000 S.F.
- Park & Open Space Yes
- Redevelopment of Existing Yes

- STATION AREA TYPOLOGY
  NEIGHBORHOOD CENTER TYPE 1



TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI



TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION AREA PLAN ALTERNATIVE
CHEROKEE STATION
Neighborhood Center Type 1

STREETS

- Primary streets: Kingshighway & Natural Bridge
- Secondary Streets: Noorwood, Euclid, Lee, St. Louis
- Tertiary Streets: All others

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

WORK TO DATE

B.7 Refinement of Station Area Plan Alternatives

B.7.1 Transportation Analysis of Alternative Station Area Plans

- Extend Farlin to Margaretta and straighten Euclid
- Reduce greenway median at North and South intersections of Kingshighway and Natural Bridge to create new Left turn lane, transforming right-most lane into bus pull-in
- Priority bus signilization on Kingshighway at Natural Bridge
- Remove #4 bus line while strengthening #95 bus line
- Relocate Bike Lanes to St. Louis Ave on shared lanes. Bike lanes connect to transit station via Northbound Kingshighway
- Dedicated bike and pedestrian path into office park from intersection of Kingshighway and Natural Bridge

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

STATION AREA PLAN ALTERNATIVE
CHEROKEE STATION
Neighborhood Center Type 1

STATION ORGANIZATION

- Side, Staggered, Far-Side, Side-Loading Platforms

Residential
Office
Mixed Use
Vacant Plot
Plot with Vacant Building

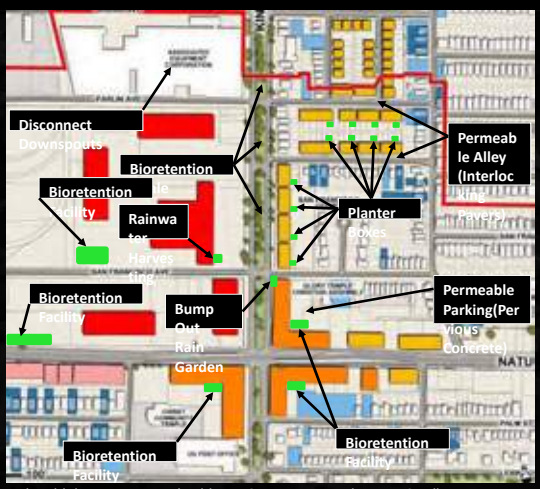
TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

WORK TO DATE

B.7 Refinement of Station Area Plan Alternatives

B.7.2 Stormwater and Environmental Planning Analysis



Kingshighway at Natural Bridge – Stormwater and Water Quality Improvements

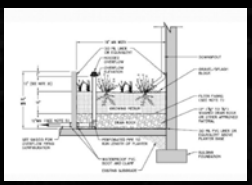
TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

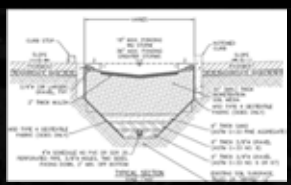
WORK TO DATE

B.7 Refinement of Station Area Plan Alternatives

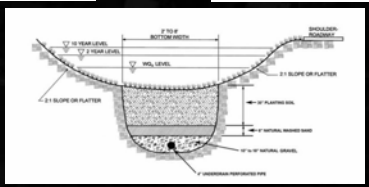
B.7.2 Stormwater and Environmental Planning Analysis

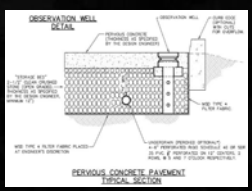


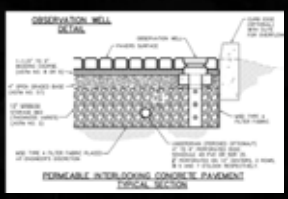
Planter Box



Bioretention Facility







TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

PREFERRED ALTERNATIVE – KINGSHIGHWAY STATION

KINGSHIGHWAY STATION PLAN – NEIGHBORHOOD CENTER TYPE 1

AERIAL VIEW LOOKING NORTH EAST

- Residential
- Office
- Commercial
- Mixed Use

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

PREFERRED ALTERNATIVE – KINGSHIGHWAY STATION

KINGSHIGHWAY STATION PLAN – NEIGHBORHOOD CENTER TYPE 1

AERIAL VIEW LOOKING SOUTH EAST

- Residential
- Office
- Commercial
- Mixed Use

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

PREFERRED STATION AREA PLANS

Neighborhood Center Type 1

Preferred land use patterns and density assumptions

Land Use for some parcels in the Northwest Quadrant of the station area are changed to Regional Commercial Use. Parcels adjacent to Natural Bridge Avenue East of Kingshighway are changed to Mixed Use

Public open space systems and treatments

Major infrastructural improvements integrated into new infill development along Natural Bridge Avenue adjacent to transit station as well as along the greenway bisecting Kingshighway, linking to Penrose Park.

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

PREFERRED STATION AREA PLANS
Neighborhood Center Type 1

Accommodations for pedestrians and bicyclists and connections to existing/planned facilities

- Reroute bike network along St. Louis ave , connecting to station via Kingshighway

Vehicular access routing to arterials/highway network

No change

Assumptions: Kingshighway

Rents per Unit or Square Foot

- Residential = $1.10-$1.15 per square foot
- Retail = $13.00 per square foot
- Office = $15.00 per square foot

Other Assumptions

- Assumes sale of all development components in year 30
- Modest inflation/growth rates
- Assumes development phased over a specific development timeline

Kingshighway Station

Program Title

- Market Rate Residential = 1,100 units
- Affordable Residential = 254 units
- Renovated Residential = 195 units
- Retail = 285,000 sf
- Office = 1,000,000 sf

Kingshighway Station

- Market Rate Residential = 1,100 units
- Affordable Residential = 254 units
- Renovated Residential = 195 units
- Retail = 285,000 sf
- Office = 1,000,000 sf

Preliminary Financial Outcome

- Total Acreage = 43.2
- Development Cost = $487.1M
- Development Value = $399.7M
- Development Gap = $87.4M

Kingshighway Station

- Market Rate Residential = 1,100 units
- Affordable Residential = 254 units
- Renovated Residential = 195 units
- Retail = 285,000 sf
- Office = 1,000,000 sf

Preliminary Financial Outcome

- Return without Subsidy = 13.2%
- Estimated Subsidies Available = $128.6M
- Return with Subsidy = 18.9%
- Land Residual Value @ 15% = $52.5M
- Land Residual Value @ 20% = $70.0M

Use Strategy - Kingshighway

- 1st: Focus on the stabilizing the neighborhood through:
  - Redevelopment of vacant residential buildings
  - Construction of new infill housing
- 2nd: New office and residential development near the intersection of Natural Bridge and Kingshighway

Implementation - Kingshighway

- Form an internal redevelopment team for the station area
- Identify master developer for specific nodes or programs
- Apply public financing strategically:
  - TIF → public infrastructure, acquisition, and commercial property renovations
  - CID/TDD → street improvements and other enhancements
  - Chapter 353 → tax abatement to lure key developers
  - Chapter 99 → tax abatement for individual property owners

Design - Kingshighway

- Adopt a form-based code for the area
  - Provide flexibility for office campus development
- Opportunity to push modern design in certain portions of the station area → attract new residents and businesses
- Retain historic character of neighborhoods to the east of Kingshighway

Action Plan - Kingshighway

- Convene a working group that is dedicated to furthering TOD within the station area at commencement of station construction
- Actively acquire identified redevelopment parcels if/when available
- Communicate opportunities/programs to area residents and developers
- Form necessary redevelopment corporations (TIF, 353, etc.) to foster development of the office, mixed-use, and residential components as those projects become viable

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

RECOMMENDED CHANGES TO COMP PLAN / STRATEGIC LUP

COMPREHENSIVE PLAN

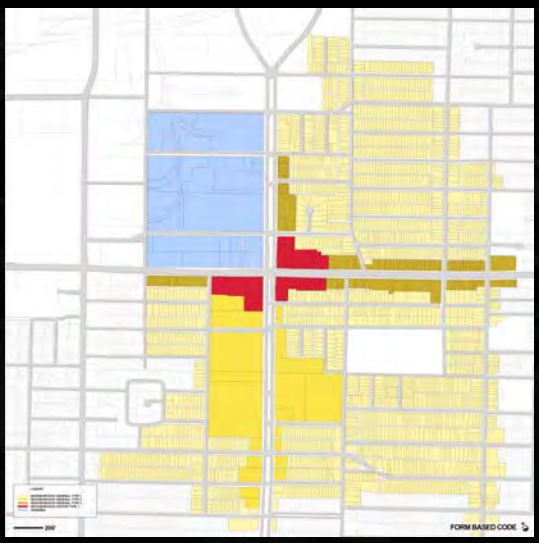
TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

FORM BASED CODE: KINGSHIGHWAY STATION

Parcels abutting Kingshighway and also Natural Bridge, are classified as a mix of
NEIGHBORHOOD CENTER TYPE 1
NEIGHBORHOOD GENERAL TYPE 3
NEIGHBORHOOD GENERAL TYPE 2
NEIGHBORHOOD GENERAL TYPE 1
CAMPUS TYPE

All remaining residential areas are classified as
NEIGHBORHOOD GENERAL TYPE 1



Neighborhood General Type 1
Neighborhood General Type 2
Neighborhood General Type 3
Neighborhood Center Type 1
Campus Type

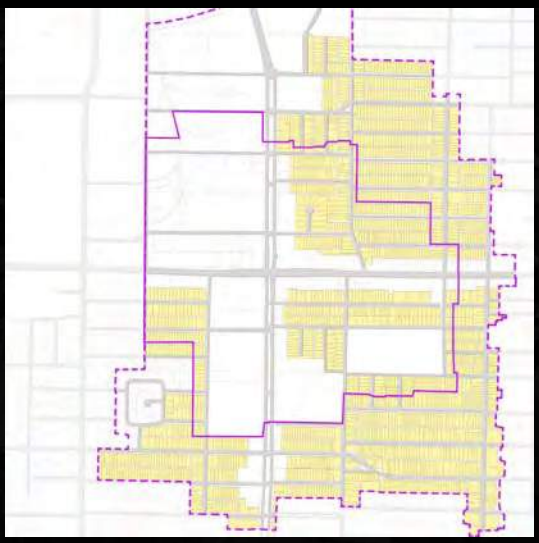
TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*

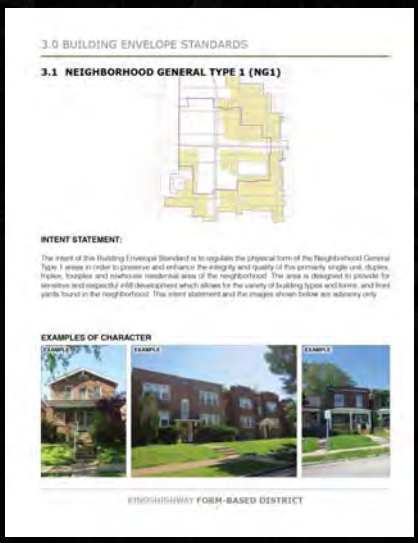
- Neighborhood General Type 1
  - Min. Building Height: 2 stories
  - Max. Buildings Height: 3 stories
  - Setback: 25 ft. min, 50 ft. max.
  - Ground Floor Uses: Residential
  - Upper Floor Uses: Residential

  - Building Types:
    - Detached single family
    - Rear Garage
    - Carriage House
    - Duplex, Triplex, and Fourplex
    - Rowhouse and Courtyard Rowhouse



Neighborhood General Type 1
Neighborhood General Type 2
Neighborhood General Type 3
Neighborhood Center Type 1
Campus Type

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*
Neighborhood General Type 1 (NG1)


3.0 BUILDING ENVELOPE STANDARDS

3.1 NEIGHBORHOOD GENERAL TYPE 1 (NG1)

INTENT STATEMENT:

The intent of this Building Envelope Standard is to regulate the physical form of the Neighborhood General Type 1 areas in order to preserve and enhance the integrity and quality of the primarily single unit, duplex, triplex, fourplex and townhouse residential area of the neighborhood. The area is designed to provide for sensitive and respectful infill development which allows for the variety of building types and forms, and front yards found in the neighborhood. This intent statement and the images shown below are advisory only.

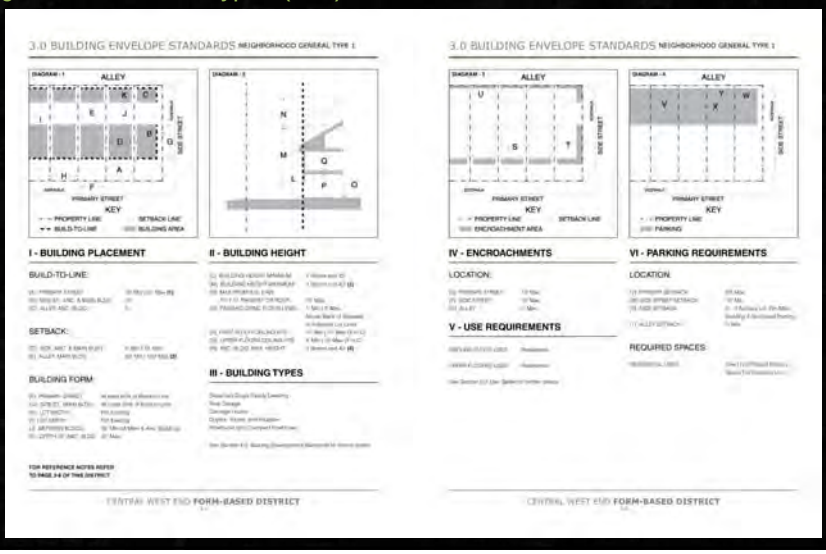
EXAMPLES OF CHARACTER

EXAMPLE EXAMPLE EXAMPLE

KINGSHIGHWAY FORM-BASED DISTRICT

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*
Neighborhood General Type 1 (NG1)


3.0 BUILDING ENVELOPE STANDARDS NEIGHBORHOOD GENERAL TYPE 1

ALLEY

PRIMARY STREET

SIDE STREET

KEY

PROPERTY LINE

BUILD-TO-LINE

SETBACK LINE

BUILDING AREA

I - BUILDING PLACEMENT

BUILD-TO-LINE:

SETBACK:

BUILDING FORM:

II - BUILDING HEIGHT

III - BUILDING TYPES

FOR REFERENCE NOTES REFER TO PAGE 3-4 OF THIS DISTRICT

CENTRAL WEST END FORM-BASED DISTRICT

3.0 BUILDING ENVELOPE STANDARDS NEIGHBORHOOD GENERAL TYPE 1

ALLEY

PRIMARY STREET

SIDE STREET

KEY

PROPERTY LINE

SETBACK LINE

ENCROACHMENT AREA

PARKING

IV - ENCROACHMENTS

LOCATION:

V - USE REQUIREMENTS

VI - PARKING REQUIREMENTS

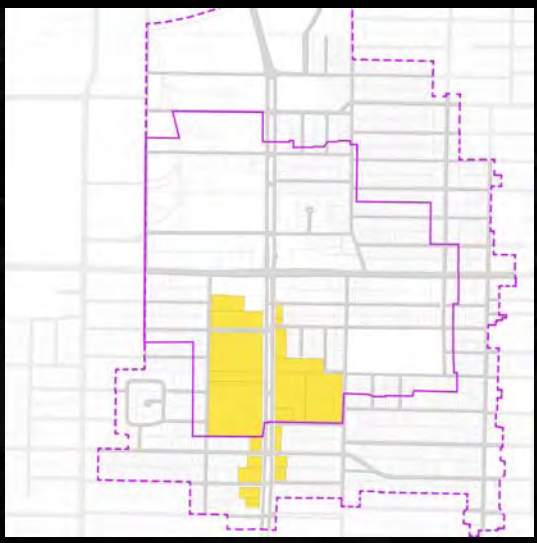
LOCATION:

REQUIRED SPACES

CENTRAL WEST END FORM-BASED DISTRICT

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*

- Neighborhood General Type 1
- Neighborhood General Type 2
  - Min. Building Height: 3 stories
  - Max. Buildings Height: 8 stories
  - Setback: 25 ft. min, 50 ft. max.
  - Ground Floor Uses: Residential
  - Upper Floor Uses: Residential
  - Building Types:
    - Duplex, Triplex, and Fourplex
    - Rowhouse and Courtyard Rowhouse
    - Stacked Flats
    - Courtyard Building
    - High Rise Residential Building



Neighborhood General Type 1
Neighborhood General Type 2
Neighborhood General Type 3
Neighborhood Center Type 1
Campus Type

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*

Neighborhood General Type 2 (NG2)

3.0 BUILDING ENVELOPE STANDARDS

3.2 NEIGHBORHOOD GENERAL TYPE 2 (NG2)

INTENT STATEMENT:

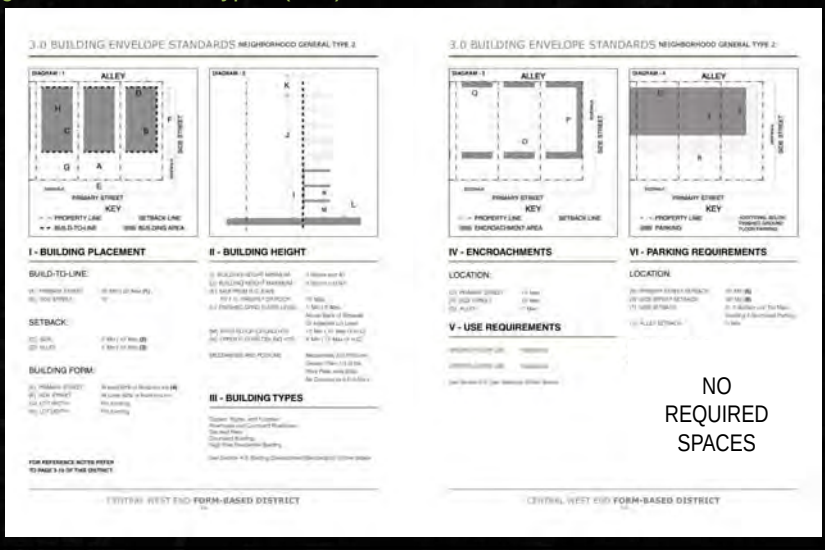
The intent of the Building Envelope Standard is to regulate the physical form of the Neighborhood General Type 2 areas in order to preserve and enhance the integrity and quality of this primarily denser and better, larger lot residential area of the neighborhood. The area is designed to provide for denser and architecturally appropriate infill development which allows for a variety of building types, heights and forms as well as the common yards found in the neighborhood. This intent statement and the images shown below are advisory only.

EXAMPLES OF CHARACTER

EXAMPLE EXAMPLE EXAMPLE

FORM-BASED DISTRICT

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*
Neighborhood General Type 2 (NG2)

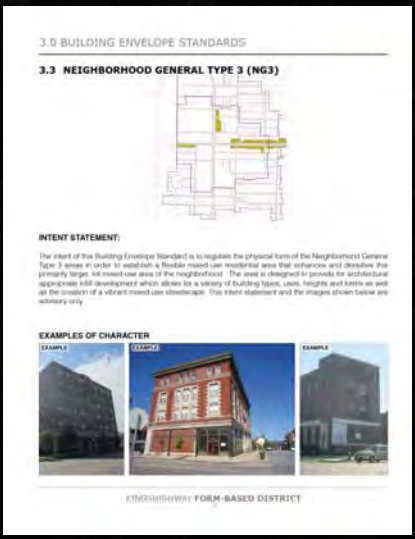


DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*

- Neighborhood General Type 1
- Neighborhood General Type 2
- Neighborhood General Type 3
  - Min. Building Height: 3 stories
  - Max. Buildings Height: 8 stories
  - Setback: 0 ft.
  - Ground Floor Uses: Office, Primary Retail, Residential, Secondary Retail, Sp.
  - Upper Floor Uses: Office, Residential, Sp.

  - Building Types:
    - Rowhouse and Ctd. Rowhouse
    - Stacked Flats
    - Courtyard Building
    - High Rise Residential Building
    - Commercial Block Building
    - Flex Buildings
    - Liner Building

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*
Neighborhood General Type 3 (NG3)


3.0 BUILDING ENVELOPE STANDARDS

3.3 NEIGHBORHOOD GENERAL TYPE 3 (NG3)

INTENT STATEMENT:

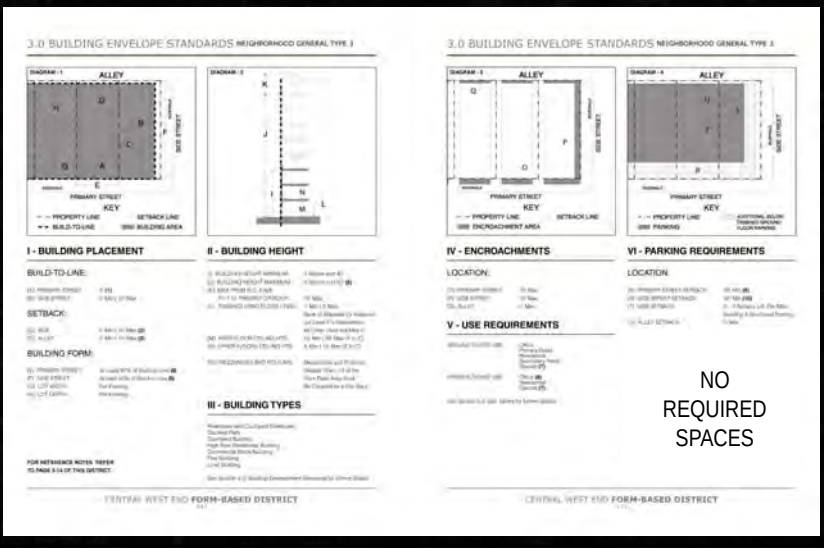
The intent of this Building Envelope Standard is to regulate the physical form of the Neighborhood General Type 3 areas in order to establish a flexible mixed-use residential area that enhances and densifies the primarily large, 44 mixed-use area of the neighborhood. The area is designed to provide for architectural appropriate infill development which allows for a variety of building types, uses, heights and forms as well as the creation of a vibrant mixed-use streetscape. The intent statement and the images shown below are advisory only.

EXAMPLES OF CHARACTER

KINGSHIGHWAY FORM-BASED DISTRICT

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*
Neighborhood General Type 3 (NG3)


3.0 BUILDING ENVELOPE STANDARDS NEIGHBORHOOD GENERAL TYPE 3

I - BUILDING PLACEMENT

BUILD-TO-LINE:

SETBACK:

BUILDING FORM:

II - BUILDING HEIGHT

III - BUILDING TYPES

CENTRAL WEST END FORM-BASED DISTRICT

3.0 BUILDING ENVELOPE STANDARDS NEIGHBORHOOD GENERAL TYPE 3

IV - ENCROACHMENTS

LOCATION:

V - USE REQUIREMENTS

VI - PARKING REQUIREMENTS

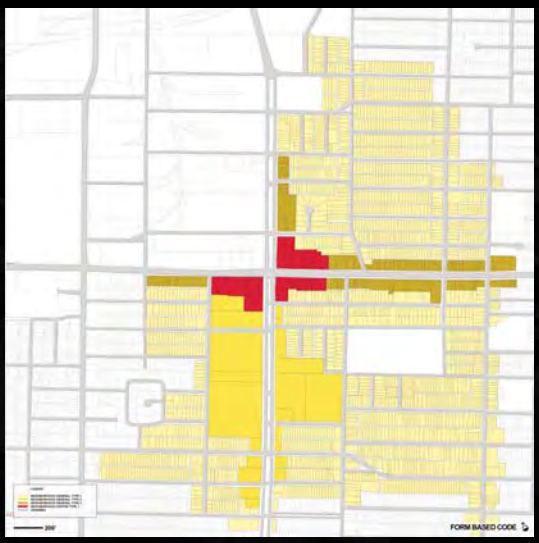
LOCATION:

NO REQUIRED SPACES

CENTRAL WEST END FORM-BASED DISTRICT

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*

- Neighborhood General Type 1
- Neighborhood General Type 2
- Neighborhood General Type 3
- Neighborhood Center Type 1
  - Min. Building Height: 3 stories
  - Max. Buildings Height: 12 stories
  - Setback: 0 ft. first 6 stories, 30 ft. above 6 stories
  - Ground Floor Uses: Office, Primary Retail, Secondary Retail, Special
  - Upper Floor Uses: Office, Residential, Special
  - Building Types:
    - Podium Building
    - Commercial Block Building
    - Flex Building
    - Live/Work Units
    - Liner Building

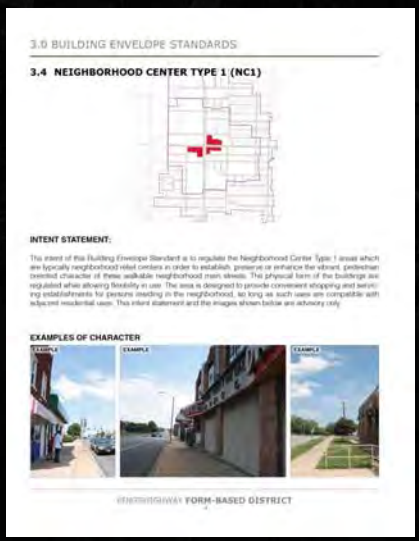


Neighborhood General Type 1
Neighborhood General Type 2
Neighborhood General Type 3
Neighborhood Center Type 1
Campus Type

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*

Neighborhood Center Type 1 (NC1)


3.0 BUILDING ENVELOPE STANDARDS

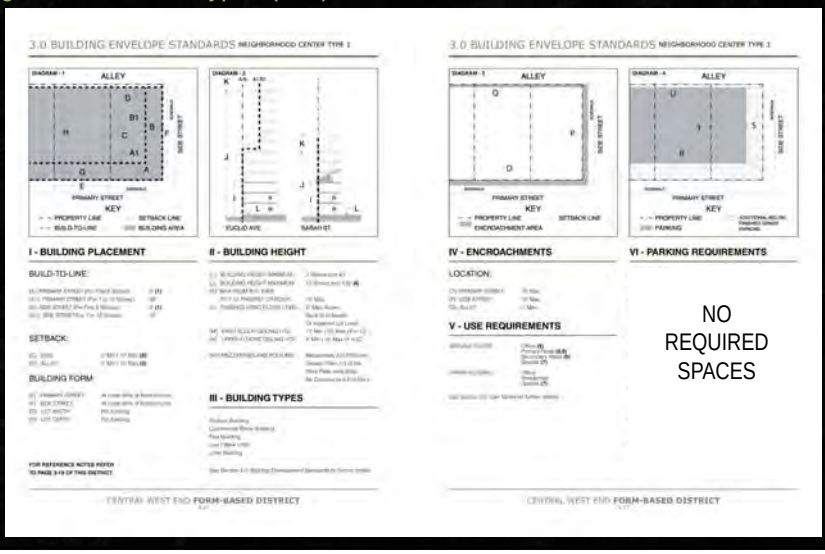
3.4 NEIGHBORHOOD CENTER TYPE 1 (NC1)

INTENT STATEMENT:

EXAMPLES OF CHARACTER

FORM-BASED DISTRICT

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*
Neighborhood Center Type 1 (NC1)



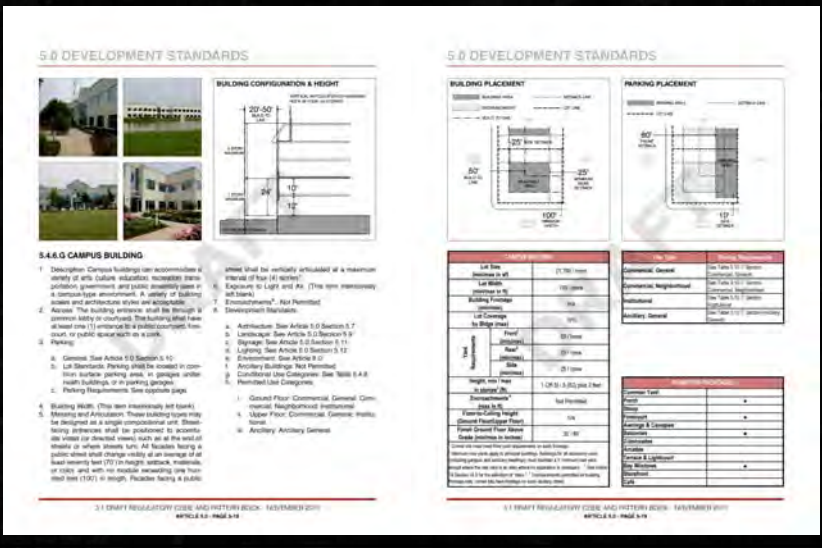
TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

DRAFT FORM-BASED DISTRICT:
Building Envelope Standards

- Neighborhood General Type 1
- Neighborhood General Type 2
- Campus Type
  - Min. Building Height: 3 stories
  - Max. Buildings Height: 12 stories
  - Setback: 0 ft. min., 30 ft. max
  - Ground Floor Uses: Office, Residential, Primary Retail, Secondary Retail, Sp.
  - Upper Floor Uses: Office, Residential, Sp.
  - Building Types:
    - Institutional Building
    - High Rise Residential Building
    - Commercial Block Building
    - Flex Building
    - Live/Work Units
    - Liner Building

DRAFT FORM-BASED DISTRICT: *Building Envelope Standards*

Example Campus-Type (CA)


5.0 DEVELOPMENT STANDARDS

BUILDING CONFIGURATION & HEIGHT

5.4.6.G CAMPUS BUILDING

5.0 DEVELOPMENT STANDARDS

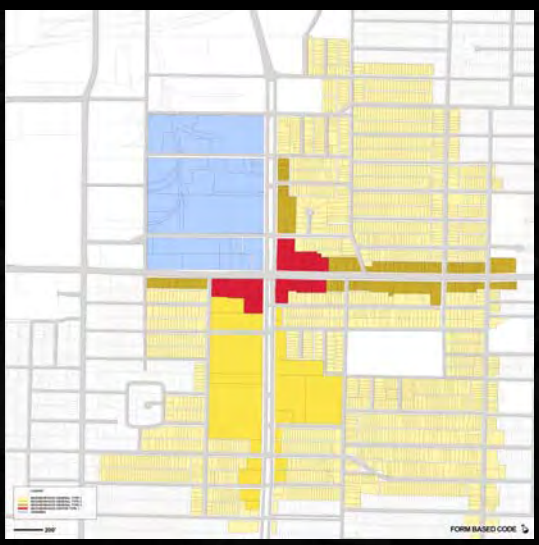
BUILDING PLACEMENT

PARKING PLACEMENT

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

RECOMMENDED CHANGES TO COMP PLAN/STRATEGIC LUP

NOTES



Neighborhood General Type 1
Neighborhood General Type 3
Campus Type

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

VIEW OF EXISTING CONDITIONS FROM CORNER OF KINGSHIGHWAY & NATURAL BRIDGE
LOOKING NORTH WEST

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

CONSTRUCTION OF KINGSHIGHWAY STATION STOP ON NORTHSIDE-SOUTHSIDE ALIGNMENT
STREET INFRASTRUCTURE IMPROVEMENTS ON KINGSHIGHWAY & NATURAL BRIDGE

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

NEW DEVELOPMENT FILLS UNDERUTILIZED PARCELS WITH 3 STORY BUILDINGS AND 30' SETBACK

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

NEW DEVELOPMENT FILLS UNDERUTILIZED PARCELS WITH 3 -6 STORY BUILDINGS AND 30' SETBACK

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

VIEW OF EXISTING CONDITIONS FROM CORNER OF KINGSHIGHWAY & NATURAL BRIDGE
LOOKING NORTH EAST

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

CONSTRUCTION OF KINGSHIGHWAY STATION STOP ON NORTHSIDE-SOUTHSIDE ALIGNMENT
STREET INFRASTRUCTURE IMPROVEMENTS ON KINGSHIGHWAY & NATURAL BRIDGE

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

NEW DEVELOPMENT FILLS UNDERUTILIZED PARCELS WITH 3 STORY BUILDINGS AND 30' SETBACK

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

BLOCK EDGE AT INTERSECTION OF KINGSHIGHWAY & NATURAL BRIDGE REACHES 6 STORIES

KINGSHIGHWAY STATION – BUILDING ENVELOPE STUDIES

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

PREFERRED STATION AREA PLANS

CHEROKEE: Neighborhood General Type 3

- Residential 650 Units (1,000 S.F./Unit)
  - 350 New Build Units
  - 300 Renovated Units
- Retail 60,000 S.F.
- Office 450,000 S.F.
- Park & Open Space Yes
- Redevelopment of Existing Yes

KINGSHIGHWAY: Neighborhood Center Type 1

- Residential 1,100 Units (1,000 S.F./Unit)
  - 800 New Build Units
  - 300 Renovated Units
- Retail 285,000 S.F.
- Office 1,000,000 S.F.
- Park & Open Space Yes
- Redevelopment of Existing Yes

Summary

Kingshighway

- Traditional subsidy programs cover the financial gap
- Lack of investment or inertia in the area may prove a hindrance to initiating development

Cherokee

- Shortfall of gap funding exists
- Neighborhood already in transition may move the development process along quickly

DEVELOPMENT STRATEGIES

Summary of Public Outreach Presentation: Vector Communications Group, June 5, 2013

TOD STATION AREA PLANNING

North South Alignment

Technical Advisory Committee Meeting #2

SAINT LOUIS DEVELOPMENT CORPORATION

THE CITY OF SAINT LOUIS

May 23, 2013

H3 Studio

Development Strategies :: **Bernardin, Lochmueller & Associates** :: Vector Communications :: M3 Engineering Group

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STAKEHOLDER INPUT

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY AND
NATURAL BRIDGE STATION AREA
STAKEHOLDERS INTERVIEWED

- ALDERWOMAN SHARON TYUS
  - 1st WARD
- GINGER IMSTER & NIKKI DOUGHTY & STEPHANIE DOOLEY – City Academy
- MARK VOGEL – Board Member, Citizen's For Modern Transit (CMT)
- BARBARA WASHINGTON - Matthews Dickey Boys & Girls Club

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY AND NATURAL BRIDGE
TOD BENEFITS AND CHALLENGES

Benefits	Challenges
• Increase ridership within community • Attract more visitors/pedestrians • Attract diverse businesses and services • Provide faster, more efficient transit • Improve look of neighborhood • Increase local jobs • Access to non-local jobs • Demonstrate a united/inclusive City • Change perception of neighborhood • Develop corridor easily • Leverage rich history of community • In-fill opportunities for housing stock development	• Increased traffic congestion • Increased foot traffic = less safety • Current businesses cater to drivers • Current lack of business type diversity • Limited contiguous acreage available • Loss of customers due to construction • Gentrification • Residents fear of change and the unknown / lack trust in the process • Too low standards for supplying consumer needs • Rising cost to businesses and residents • More noise • Less convenient parking

KINGSHIGHWAY AND NATURAL BRIDGE TOD BENEFITS AND CHALLENGES

Benefits	Challenges
• Increase ridership within community • Attract more visitors/pedestrians • Attract diverse businesses and services • Provide faster, more efficient transit • Improve look of neighborhood • Increase local jobs • Access to non-local jobs • **Demonstrate a united/inclusive City** • Change perception of neighborhood • Develop corridor easily • **Leverage rich history of community** • **In-fill opportunities for housing stock development**	• Increased traffic congestion • **Increased foot traffic = less safety** • Current businesses cater to drivers • Current lack of business type diversity • Limited contiguous acreage available • Loss of customers due to construction • **Gentrification** • Residents fear of change and the unknown / lack trust in the process • Too low standards for supplying consumer needs • Rising cost to businesses and residents • More noise • Less convenient parking

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY AND NATURAL BRIDGE DESIRED BUSINESSES AND HOUSING TYPES

BUSINESS TYPES:

- Resident focused: Hardware store /medium sized grocer / coffee shop
- Entertainment venues: live music, casual restaurants
- Big box retail: Burlington Coat Factory / Old Navy
- Services: clinic / mechanic / bike shop / office supply / quality daycare

HOUSING TYPES:

- Apartments: Senior living / 2 to 3 bedroom condos
- Mixed-use buildings: 2 to 4 stories tall
- Renovated existing housing

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY AND NATURAL BRIDGE EVALUATION CRITERIA

- Neighborhood Connectivity
- Uses – residential, business, service
- Users – mixed income, ages, abilities
- Benefit to existing Neighbors
- Accessibility – ADA
- Multi-modal – connect to bike, bus, taxi, parking
- Housing renovation rather than ALL new development
- Noise reduction for neighbors
- "Ride Metro" – Programming
- Minimizing resident displacement
- Eliminate vacant land

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

KINGSHIGHWAY AND NATURAL BRIDGE COMMUNITY VISION

- Hotbed of Innovation and Urban Revitalization – destination for visitors
- Case Study for "Courage, Faith, Vision, & Integrity"
- Families get everything they need close to home
- Safe neighborhoods conducive to business development
- Commerce strong and growing in North City

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

CHEROKEE AND JEFFERSON STATION AREA STAKEHOLDERS INTERVIEWED

- ALDERMAN CRAIG SCHMID - 20TH WARD
- JASON DEEM – President Cherokee Station Association
- NANCY CROSS – Board Member, Citizen's For Modern Transit (CMT)

Attempted:

- ALDERMAN KENNETH ORTMANN - 9TH Ward
- HILARIO VARGAS – Owner, La Vallesana Restaurant

CHEROKEE STATION BUSINESS ASSOCIATION

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

CHEROKEE AND JEFFERSON TOD BENEFITS AND CHALLENGES

Benefits	Challenges
• Compliment downtown developments • Spurs additional entrepreneurship • Cherokee = downtown for South City • Utilize dormant infrastructure assets (i.e. Lutheran Hospital underground garage) • Provide daytime services and retail for local residents • Attract new residents • Create a unique destination for visitors • Increase residential density • Increase business diversity	• Marketing opportunities to developers • Gaining buy-in from developers • Adding businesses which fit the community – independent and creative versus national chain stores • Promoting sustainable business development • Acquiring land for significant development • "NIMBY" – Not In My Back Yard" • Traffic congestion around station • Addressing density with alarming foreclosures in the area • Dividing Cherokee street via Jefferson Ave. (Antique Row vs. New West Cherokee)

CHEROKEE AND JEFFERSON
TOD BENEFITS AND CHALLENGES

Benefits	Challenges
• Compliment downtown developments • **Spurs additional entrepreneurship** • Cherokee = downtown for South City • Utilize dormant infrastructure assets (i.e. Lutheran Hospital underground garage) • Provide daytime services and retail for local residents • Attract new residents • **Create a unique destination for visitors** • Increase residential density • Increase business diversity	• Marketing opportunities to developers • Gaining buy-in from developers • **Adding businesses which fit the community** – independent and creative versus national chain stores • Promoting sustainable business development • Acquiring land for significant development • "NIMBY" – Not In My Back Yard" • Traffic congestion around station • Addressing density with alarming foreclosures in the area • **Dividing Cherokee street via Jefferson Ave. (Antique Row vs. New West Cherokee)**

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT
SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

CHEROKEE AND JEFFERSON
DESIRED BUSINESSES AND HOUSING TYPES

BUSINESS TYPES:

- Services: Bank, Culinaria, university extension, Walgreens / CVS
- Independent Businesses
- Resident focused: hardware, furniture, clothing
- More restaurants: non Mexican and non national chain

HOUSING TYPES:

- Market to young professionals – smaller units
- Limit number of smaller rental units – long term renters / owners = stabilize neighborhood
- Renovate existing housing
- Modern new buildings to contrast historic
- Mixed use buildings – 3 to 4 stories along Jefferson
- Move rental / ownership from 90/10 -> 50/50

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

CHEROKEE AND JEFFERSON EVALUATION CRITERIA

- Walkability and connectivity to neighborhood
- Existing development occurring organically – potential farmers market, shipping container café, etc.
- Allowing small independent businesses continued access to new development opportunities
- Limited land available
- Multi-modal access to station
- Segmenting / diversifying new developments of cultural and service versus commerce
- Parking for commuters
- Possibly moving station to Chippewa and Jefferson with better access
- TOD could make this a destination spot for explorers

TOD STATION AREA PLANNING :: PROPOSED NORTHSIDE-SOUTHSIDE ALIGNMENT

SAINT LOUIS DEVELOPMENT CORPORATION - CITY OF ST. LOUIS, MISSOURI

CHEROKEE AND JEFFERSON COMMUNITY VISION

- Vibrant, diverse community with something for everyone – housing, amenities, public spaces
- Cherokee has arrived and developing more in its next phase of renewal
- Public art and innovation make Cherokee MetroLink a destination for the region

INFORMING and ENGAGING STAKEHOLDERS LONG TERM:

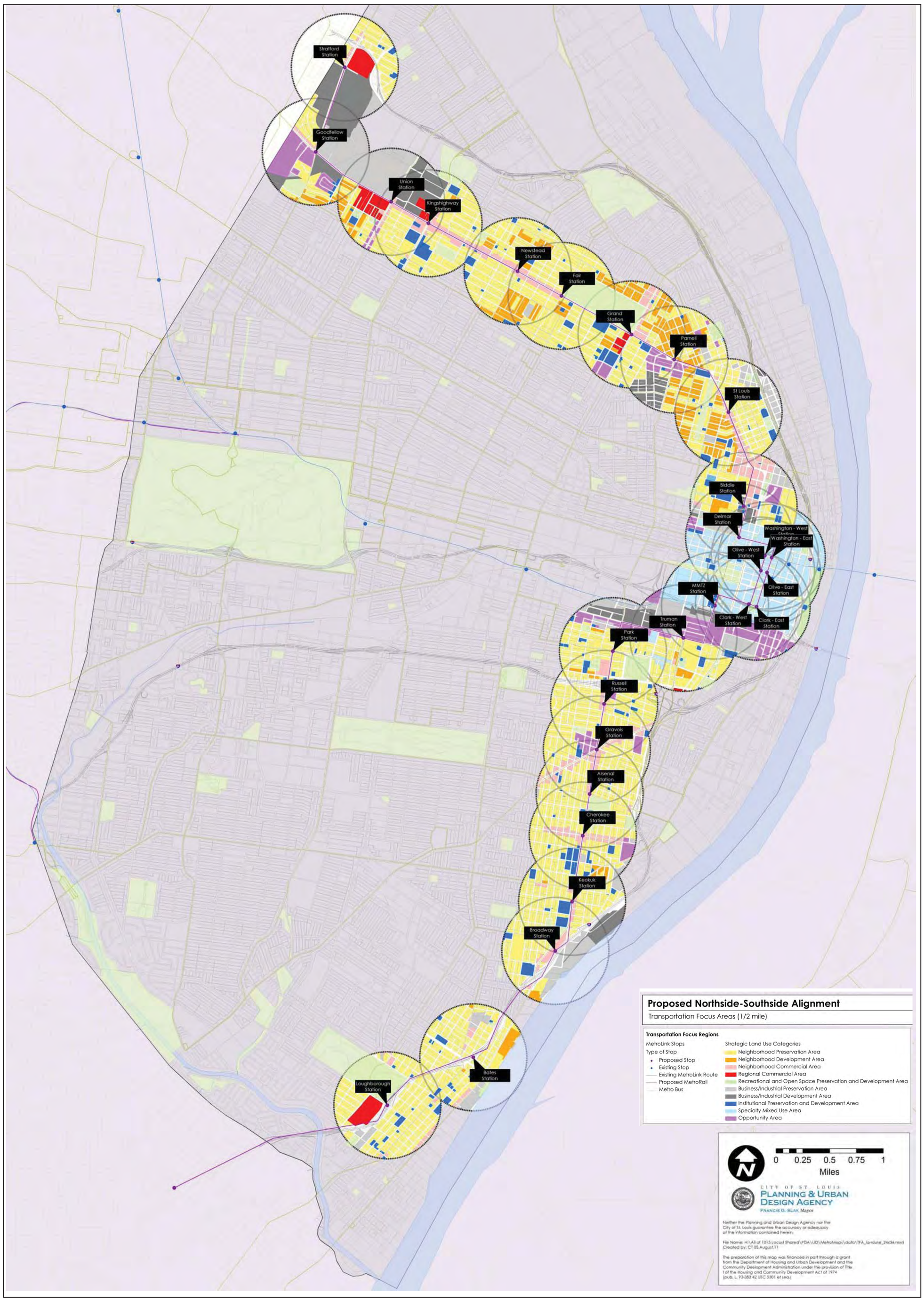
- Engage directly with additional impacted stakeholders – (as needed)
- Attend community/organization meetings – i.e. wards, business associations, block units, advocacy organizations, etc.;
- Build/utilize partnerships with stakeholders and invested groups and individuals
- Create N/S Citizen's Advisory Committee
- Share online – Social Media, Website
- Host Station Area Networking Symposium - developers, leaders, experts
- Provide Progress Reports – SLDC Annual Report, website, e-newsletter

INCLUSION | TRANSPARENCY | MARKETING

Proposed Northside-Southside Alignment: Exhibit Boards

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



DOWNTOWN STATION AREAS

PROPOSED N-S ALIGNMENT STATIONS

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION

	DEVELOPMENT TYPES		TYPOLOGICAL PRECEDENT			DEMOGRAPHICS, HOUSING, EMPLOYMENT (1/2 MILE FROM STATION (Multiple Census blocks counted/Acres may not reflect exact station area))									CONNECTIVITY - 1/2 MILE FROM STATION (1/2 MILE FROM STATION (Multiple Census blocks counted/Acres may not reflect exact station area))					STATION AREA LAND PROFILE (1/4 MILE FROM STATION (250 ACRES))								ZONING, LANDUSE, & COMMUNITY PLANS			
			LOS ANGELES																										
NORTHSIDE-SOUTHSIDE ALIGNMENT STATION NAME	ST. LOUIS TOD FRAMEWORK TYPOLOGY	ST. LOUIS STREETCAR FEASIBILITY STUDY DEVELOPMENT TYPES (CURRENT)	USE MIX (WORKERS/RESIDENTS)	INTENSITY (RESIDENTS + WORKERS)	LOS ANGELES TOD TYPOLOGY	ACRES	POPULATION	POPULATION DENSITY (PERSON/ ACRE)	HOUSING UNITS	HOUSING DENSITY (DU/ACRE)	HOUSING OCCUPIED	HOUSING VACANCY	EMPLOYERS (FIRMS)	JOBS (Worker Population)	BUS ROUTES	BIKE INFRASTRUCTURE	WALKSCORE (MEAN)	ST. LOUIS STREETCAR ROUTE	NEIGHBORHOODS IN STUDY AREA	TOTAL LOTS	TOTAL BLOCKS	AVERAGE BLOCK SIZE (ACRES)	ASSESSED VALUE OF ALL PROPERTY	LOTS AVAILABLE FOR DEVELOPMENT	ACRES AVAILABLE FOR DEVELOPMENT	ASSESSED VALUE OF AVAILABLE PROPERTY	AVAILABLE PROPERTY ZONING	ZONING TYPES	LAND USE	STREETCAR FEASIBILITY STUDY DEVELOPMENT TYPES (POTENTIAL)	NOTES
STRATFORD STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.38	5062	SUBURBAN NEIGHBORHOOD	266.69	3675	13.8	1176	4.4	920	256	36	1387	3	2 PATHS	37	NO	3	99	11	22.7	$67,673,380	13	24	$406,400	Neighborhood Commercial, Area Commercial, Industrial	Area Commercial, Industrial, Neighborhood Commercial	Neighborhood Preservation Area, Neighborhood Commercial Area, Regional Commercial Area, Business/Industrial Development Area		Industrial & low rise commercial
GOODFELLOW STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.61	6343	NEIGHBORHOOD CENTER	403.58	3929	9.7	1488	3.7	1067	421	50	2414	4	2 PATHS	39.5	NO	2	248	22	11.4	$70,932,390	117	72.8	$2,279,400	Single Family, Multiple Family, Neighborhood Commercial, Industrial, Unrestricted	Single Family, Neighborhood Commercial, Industrial, Unrestricted	Neighborhood Preservation Area, Neighborhood Commercial Area, Business/Industrial Development Area, Opportunity Area		Industrial & Low Rise Commercial
UNION STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.63	4191	NEIGHBORHOOD CENTER	534.71	2574	4.7	1509	2.8	1052	457	103	1617	4	2 PATHS	46	NO	3	330	24	10.4	$8,712,274	68	26.1	$1,795,900	Single Family, Neighborhood Commercial, Local Commercial, Industrial, Unrestricted	Single Family, Two Family Residential, Neighborhood Commercial, Local Commercial, Industrial, Unrestricted	Neighborhood Preservation Area, Neighborhood Commercial Area, Regional Commercial , Opportunity Area		Industrial & Low Rise Commercial, S.M.L Lot sizes
KINGSHIGHWAY STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family / High Rise Housing	0.29	5144	SUBURBAN NEIGHBORHOOD	608.72	3993	6.6	2204	3.6	1684	520	102	1151	5	2 PATHS	50.5	NO	4	425	22	11.4	$9,925,400	82	36.3	$6,259,000	Single Family Residential, Two Family Residential, Neighborhood Commercial, Local Commercial & Office	Single Family Residential, Two Family Residential, Neighborhood Commercial, Local Commercial & Office	Neighborhood Preservation Area, Neighborhood Commercial Area, Regional Commercial Area, Recreational and Open Space Preservation and Development Area, Business/Industrial Development Area, Institutional Preservation and Development Area		Vacant Blocks, Industrial, Majority of lots privately owned
NEWSTEAD STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.05	8055	TRANSIT NEIGHBORHOOD	490	7680	15.7	3567	7.3	2484	1083	54	375	5	2 PATHS	50.16	NO	3	709	35	7.1	$5,445,890	76	18.7	$768,400	Two Family Residential, Neighborhood Commercial	Two Family Residential, Neighborhood Commercial	Neighborhood Preservation Area, Neighborhood Development Area, Neighborhood Commercial Area, Institutional Preservation Area		Majority of parcels in Preservation Review Area
FAIR STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.06	7221	TRANSIT NEIGHBORHOOD	418.91	6815	16.3	3407	8.1	2456	951	50	406	5	3 PATHS	54.25	NO	4	633	31	8.1	$6,202,560	76	12.6	$570,900	Two Family Residential, Neighborhood Commercial	Two Family Residential, Neighborhood Commercial	Neighborhood Preservation Area,Neighborhood Development Area, Recreational and Open Space Preservation and Development Area, Neighborhood Commercial Area, Institutional Preservation and Development Area		Majority of parcels in Preservation Review Area, Historic District present
GRAND STATION	NEIGHBORHOOD TYPOLOGY	Attached /Detached Single Family / High Rise Housing	0.07	5574	SUBURBAN NEIGHBORHOOD	580.33	5186	8.9	2400	4.1	1696	704	51	388	4	3 PATHS	55.6	NO	5	457	29	8.6	$5,627,890	129	24.3	$1,040,500	Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Area Commercial	Two Family Residential, Local Commercial & Office, Area Commercial	Neighborhood Preservation Area, Neighborhood Development Area, Neighborhood Commercial Area, Regional Commercial Area, Recreational and Open Space Preservation and Development Area, Institutional Preservation and Development Area		Preservation Review Area, Multi-Story Residential, One High Rise Building, High Vacancy
PARNELL STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.11	5236	SUBURBAN NEIGHBORHOOD	440.87	4729	10.7	1506	3.4	1048	458	53	507	5	3 PATHS	55.5	NO	4	708	44	5.7	$1,775,290	262	37.5	$606,600	Multiple Family, Local Commercial & Office	Single Family, Multi Family, Local Commercial & Office, Neighborhood Commercial	Neighborhood Preservation Area, Neighborhood Development Area, Business/Industrial Development Area, Institutional Development and Preservation Area ,Opportunity Area		Half of study area in Preservation Review, Contains Historic District, In the North Side Regeneration Plan
ST. LOUIS STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family / Employment / Centers: Attractions and Destinations	0.21	4207	SUBURBAN NEIGHBORHOOD	414.78	3465	8.4	1717	4.1	1207	510	62	742	8	3 PATHS	58.5	YES	4	671	50	5.0	$3,441,560	234	62.7	$607,100	Single Family, Multiple Family, Neighborhood Commercial, Local Commercial & Office,	Single Family, Multi Family, Neighborhood Commercial, Local Commercial & Office,	Neighborhood Preservation Area, Neighborhood Development Area, Business/Industrial Development Area, Institutional Preservation and Development Area	Attached/Detached Single Family, Potential Hot Spots	3 Historic Districts, in the North Side Regeneration Plan, Mostly Privately Owned lots
BIDDLE STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	1.01	11771	SUBURBAN NEIGHBORHOOD (-30%VMT)	487.19	5870	12	3739	7.7	2476	1263	283	5901	8	3 PATHS	73	YES	6	184	43	5.8	$12,384,420	98	47.4	$3,091,500	Multiple Family, Area Commercial, Central Business District, Industrial, +	Multiple Family, Industrial	Neighborhood Preservation Area, Neighborhood Development Area, Neighborhood Commercial area, Open Space Preservation and Development Area, Institutional Preservation and Development Area, Business/Industrial Development Area, Specialty Mixed Use Area, Opportunity Area	Attached/Detached Single Family, Mid Rise Housing, Potential Hot Spots	3xmar Station Falls within 1/2 Mile of Biddle Station
DELMAR STATION	MAJOR URBAN CENTER TYPOLOGY	Attached / Detached Single Family, Employment, Mixed Use, Mid-Rise Housing, High Rise Housing, Centers - Attractions & Destinations	3.69	25129	CBD/SPECIAL DISTRICT	591.45	5355	9.1	3913	6.6	2576	1337	625	19774	15	5 PATHS	80.75	YES	4	210	62	4.0	$69,786,450	94	33.9	$8,845,300	Multiple Family, Local Commercial & Office, Central Business District, Industrial	Multiple Family, Local Commercial & Office, Area Commercial, Central Business District, Industrial	Neighborhood Commercial Area, Neighborhood Development Area, Recreational and Open Space Preservation and Development Area, Business/Industrial Preservation Area, Business/Industrial Development Area, Institutional Preservation and Devlopment Area, Specialty Mixed Use Area	Mixed Use, Employment, Mid Rise Housing, Potential Hot Spots	Two Historic Districts with Some Parcels in Preservation Review Area, Mostly Privately Owned lots, Majority Specialty Mixed Use Area
WASHINGTON STATION	DOWNTOWN TYPOLOGY	Employment, Mixed Use, Mid-Rise Housing, High Rise Housing, Centers - Attractions & Destinations	10.36	40169	CBD/SPECIAL DISTRICT	474.94	3537	7.4	2939	6.2	1841	1098	1061	36632	17	9 PATHS	81.75	YES	4	230	66	3.8	$283,938,900	54	10.6	$8,981,000	Central Business District	Central Business District	Open Space Preservation and Development Area, Specialty Mixed Use Area	Mixed Use,	1/2 Mile Radius contains 3 other station stops
OLIVE STATION	DOWNTOWN TYPOLOGY	Employment, Mixed Use, Mid-Rise Housing, High Rise Housing, Centers - Attractions & Destinations	13.17	44898	CBD/SPECIAL DISTRICT	398.88	3168	7.9	2655	6.7	1687	968	1097	41730	20	8 PATHS	90	YES	2	233	69	3.6	$418,170,780	43	14.1	$19,628,300	Central Business District	Central Business District	Open Space Preservation and Development Area, Specialty Mixed Use Area	Mixed Use, Potential Hot Spots	1/2 Mile Radius contains 3 other station stops
CLARK STATION	DOWNTOWN TYPOLOGY	Employment, Mixed Use, Mid-Rise Housing, High Rise Housing, Centers - Attractions & Destinations	15.52	35866	CBD/SPECIAL DISTRICT	543.23	2171	4	2327	4.3	1363	964	837	33695	19	9 PATHS	90	YES	2	116	41	6.1	$272,775,580	22	24.8	$17,275,600	Central Business District, Unrestricted	Central Business District, Unrestricted	Open Space Preservation and Development Area, Business/Industrial Development, Specialty Mixed Use Area, Opportunity Area	Mixed Use, Potential Hot Spots	Most parcels in Preservation Review Area, One Historic District
MMTZ STATION	DOWNTOWN TYPOLOGY	Employment, Mixed Use, Mid-Rise Housing, High Rise Housing, Sports Destinations, Civic Centers,Transportation	31.67	20321	BUSINESS DISTRICT	456.49	622	1.4	1111	2.4	441	670	332	19699	18	9 PATHS	83.33	YES	3	134	36	6.9	$59,688,750	40	41.4	$5,838,400	Central Business District, Unrestricted	Central Business District, Unrestricted	Open Space Preservation and Development Area, Business/Industrial Development, Business/Industrial Development, Institutional Preservation and Development Area, Specialty Mixed Use Area, Opportunity Area		Study Area Contains one Historic District with few parcels in Historic Review Area, Majority Privately Owned Lots
TRUMAN STATION	V	Attached / Detached Single Family, Employment	0.94	8618	NEIGHBORHOOD CENTER (-30%VMT)	595.53	4450	7.5	2160	3.6	1915	245	113	4168	13	6 PATHS	77.8	NO	5	320	34	7.4	$30,938,330	66	30	$4,932,300	Two Family Residential, Multi Family Residential, Neighborhood Commercial, Industrial, Unrestricted	Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Industrial, Unrestricted	Neighborhood Preservation Area, Neighborhood Development Area, Neighborhood Commercial area, Open Space Preservation and Development Area, Institutional Preservation and Development Area, Business/Industrial Development Area, Specialty Mixed Use Area, Opportunity Area		Study Area Contains one Historic District with majority parcels in Historic Review Area, Majority Privately Owned Lots
PARK STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family, Employment	0.40	5882	SUBURBAN NEIGHBORHOOD	427.2	4199	9.8	2424	5.7	2016	408	113	1683	3	4 PATHS	71.16	NO	6	596	30	8.3	$23,520,480	62	29	$3,646,600	Two Family, Multiple Family, Neighborhood Commercial, Local Commercial & Office, Industrial	Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Industrial	Neighborhood Preservation Area, Neighborhood Development Area, Neighborhood Commercial area, Open Space Preservation and Development Area, Institutional Preservation and Development Area, Business/Industrial Development Area, Opportunity Area		Study Area Contains 3 Historic Districts with all plots in Historic Review Area. Large parcels are privately owned. Large parcels located at fringes of 1/2 mile radius.
RUSSELL STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family, Mid-Rise Housing (1)	0.21	7189	SUBURBAN NEIGHBORHOOD (-30%VMT)	488.61	5926	12.1	3182	6.5	2439	743	114	1263	3	5 PATHS	67	NO	6	793	30	8.3	$13,080,830	21	8.2	$700,200	Multiple Family, Neighborhood Commercial, Industrial	Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Local Commercial & Office, Industrial	Neighborhood Preservation, Neighborhood Development, Neighborhood Commercial, Institutional Preservation and Development Area, Opportunity Area		Study area contains two large Historic Districts, though few parcels are in Preservation Review Area. Large plots to the north privately owned.
GRAVOIS STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.15	10273	SUBURBAN NEIGHBORHOOD (-30%VMT)	481.68	8907	18.5	4533	9.4	3247	1286	123	1366	5	5 PATHS	68.83	NO	6	766	42	6.0	$13,420,170	67	11.7	$1,266,300	Multiple Family, Neighborhood Commercial, Local Commercial & Office	Multiple Family Residential, Neighborhood Commercial, Local Commercial & Office, Industrial	Neighborhood Preservation, Neighborhood Commercial, Institutional Preservation and Development Area, Opportunity Area		4 Historic Districts with some parcels in Preservation Review Area. Most parcels privately owned. Viable development area runs perpendicular to Jefferson along Victor and Sidney. Small Parcels available along Jefferson.
ARSENAL STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.14	9002	SUBURBAN NEIGHBORHOOD (-30%VMT)	466.69	7872	16.9	4476	9.6	2940	1536	151	1130	4	4 PATHS	72	NO	6	787	41	6.1	$12,581,790	67	10.4	$1,504,800	Multiple Family, Neighborhood Commercial	Single Family Residential, Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Local Commercial & Office	Neighborhood Preservation Area, Commercial Area, Recreational and Open Space Preservation and Development Area, Institutional Preservation Area		All Parcels in Preservation Study Review Area, 2 Historic Districts. Small scattered Publicly and Privately owned plots. Strip of 4 varied scale plots available for development adjacent to station stop.
CHEROKEE STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family, Centers - Attractions & Destinations	0.12	9201	SUBURBAN NEIGHBORHOOD (-30%VMT)	554.78	8243	14.9	5172	9.3	3073	2099	137	958	5	5 PATHS	76.25	NO	4	785	34	7.4	$12,126,000	16	6.1	$852,200	Two Family, Neighborhood Commercial, Local Commercial & Office	Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Local Commercial & Office, Industrial	Neighborhood Preservation Area, Commercial Area, Recreational and Open Space Preservation and Development Area, Institutional Preservation Area		2 Historic Districts, All parcels in Preservation Review Area. Several long, privately owned parcels available along Jefferson. Small parcels under LRA ownership distributed through neighborhoods on either side of Jefferson
KEOKUK STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.29	6176	SUBURBAN NEIGHBORHOOD (-30%VMT)	356.15	4771	13.1	2954	8.1	1886	1068	88	1405	5	4 PATHS	64.25	NO	4	771	31	8.1	$8,311,060	50	13.3	$2,017,100	Two Family, Neighborhood Commercial, Industrial	Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Industrial	Neighborhood Preservation Area, Neighborhood Development Area, Neighborhood Commercial Area, Institutional Preservation Area		3 Historic Districts, All parcels in Preservation Review area, Several varied local plots available at intersection of Keokuk and Broadway
BROADWAY STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.22	7563	SUBURBAN NEIGHBORHOOD (-30%VMT)	702.16	6186	8.8	3086	4.4	2387	699	45	1377	3	2 PATHS	60.3	NO	3	283	29	8.6	$7,740,700	22	33.6	$2,240,900	Two Family, Neighborhood Commercial, Industrial, Unrestricted	Two Family Residential, Multiple Family Residential, Neighborhood Commercial, Industrial, Unrestricted	Neighborhood Preservation Area, Neighborhood Commercial Area, Recreational and Open Space Preservation and Development Area, Institutional Preservation Area, Institutional Preservation and Development Area		1 Historic District with all parcels in Preservation Review Area, Very Large privately owned parcels are potential sites for development but are divied by the highway
BATES STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family, Mid Rise Housing	0.15	6849	SUBURBAN NEIGHBORHOOD	714.5	5964	8.3	2608	3.7	2242	366	50	885	3	2 PATHS	55.66	NO	3	559	53	4.7	$7,789,760	9	3.6	$380,300	Two Family, Multiple Family, Neighborhood Commercial	Single Family, Two Family Residential, Multi Family Residential, Neighborhood Commercial, Area Commercial, Industrial	Neighborhood Preservation, Neighborhood Development, Neighborhood Commercial, Recreational and Open Space Preservation and Development Area, Institutional Preservation Area		3 Historic Districts with all Parcels within 1/2 Mile of station in Preservation Review Area, Population on the older side.
LOUGHBOROUGH STATION	NEIGHBORHOOD TYPOLOGY	Attached / Detached Single Family	0.22	4762	SUBURBAN NEIGHBORHOOD	335.54	3903	11.6	1878	5.6	1507	371	56	859	5	2 PATHS	59.75	NO	4	398	32	7.8	$20,134,550	8	27.4	$5,779,900	Two Family, Area Commercial	Single Family Residential, Two Family Residential, Area Commercial, Industrial	Neighborhood Preservation, Regional Commercial Area, Recreational and Open Space Preservation and Development Area, Institutional Preservation and Development Area		1 Historic District on East Side of Highway (station stop is on the west side) All parcels in 1/2 Mile radius are in Preservation Review Area, Very large parcel to East of Highway privately owned ($5,758,500, 26.6 Acres)

SOURCE: CENSUS / STATE UNEMPLOYMENT INSURANCE DATA

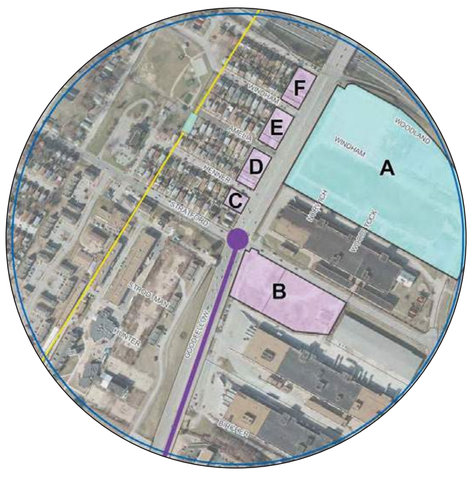
DOWNTOWN STATION AREAS

N-S ALIGNMENT STATION PROFILES

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION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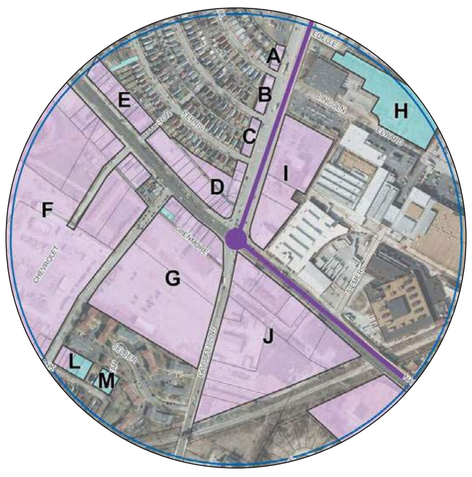
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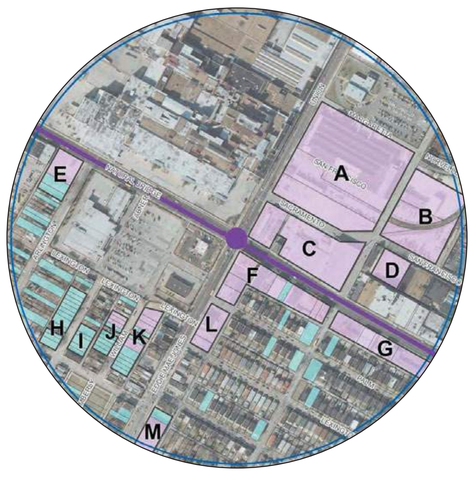
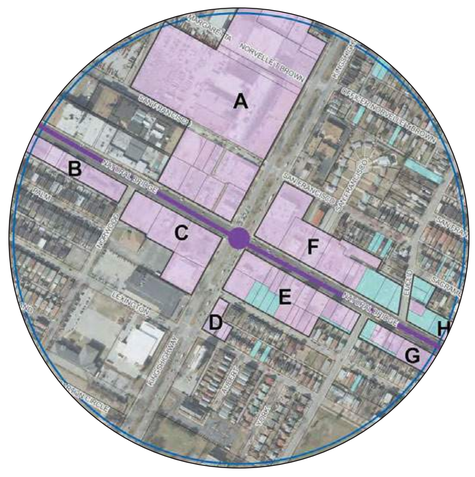
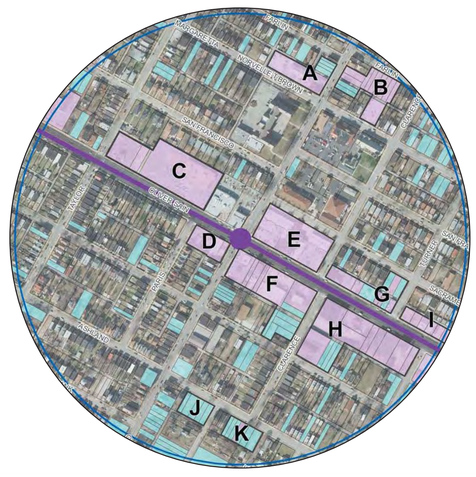

UNION STATION


KINGSHIGHWAY STATION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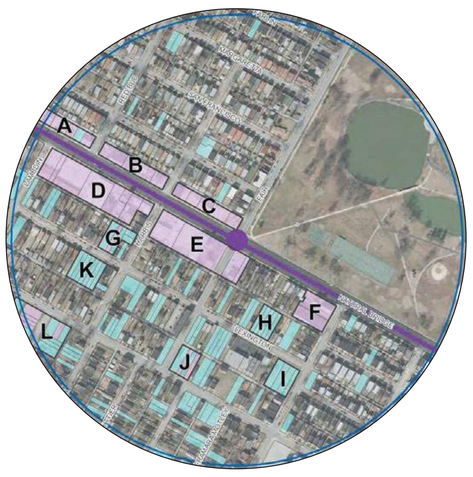
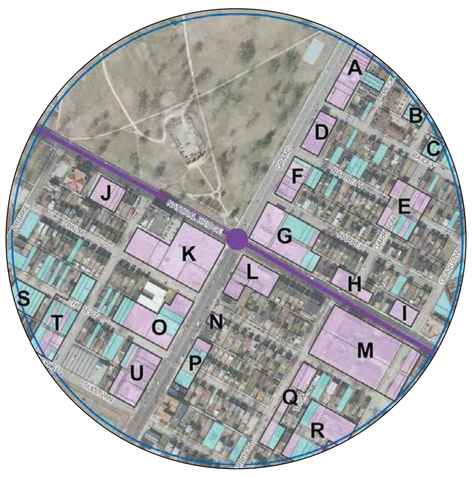
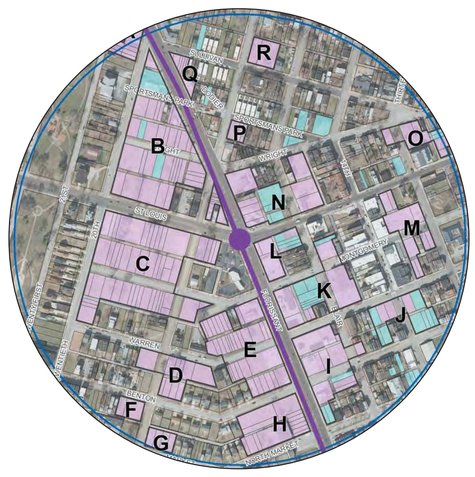

FAIR STATION


GRAND STATION

PARNELL STATION

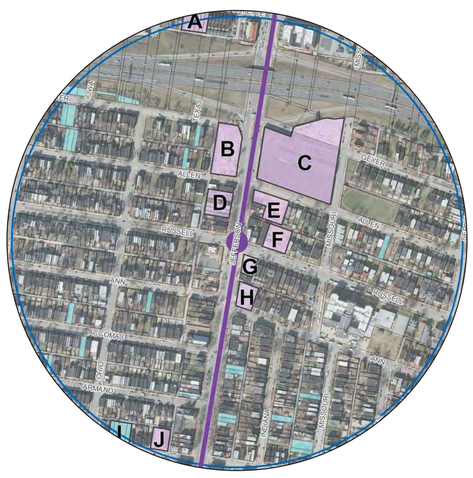

ST. LOUIS STATION

BIDDLE STATION

NORTH OF DOWNTOWN

TRUMAN STATION

PARK STATION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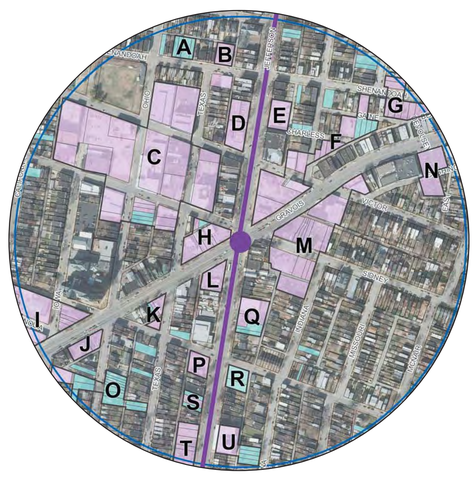
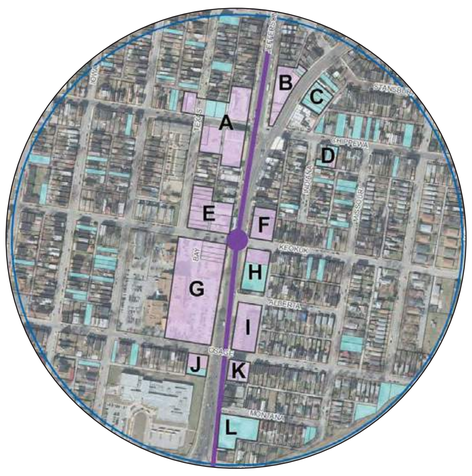
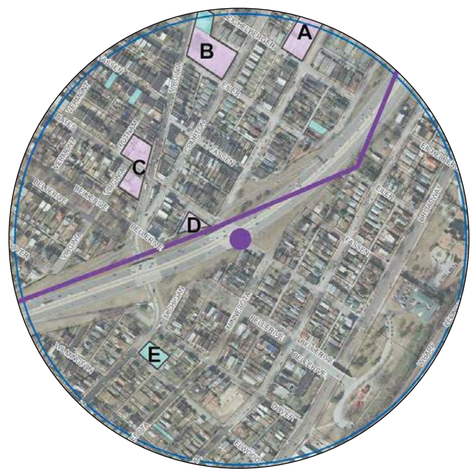

GRAVOIS STATION

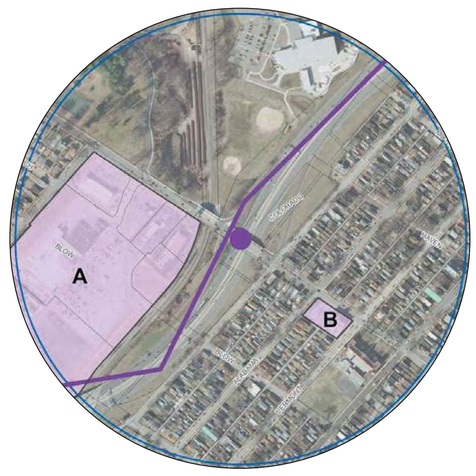
ARSENAL STATION

CHEROKEE STATION


KEOKUK STATION

BROADWAY STATION


BATES STATION


LOUGHBOROUGH STATION

SOUTH OF DOWNTOWN

1 2 3 4 5
6 7 8 9 10
16 17 18 19 20
21 22 23 24 25

STATION ORDER

1/4-Mile Station Area
Developable Areas
Privately-Owned Lot
LRA-Owned Lot
0 200 400 800 Feet
N

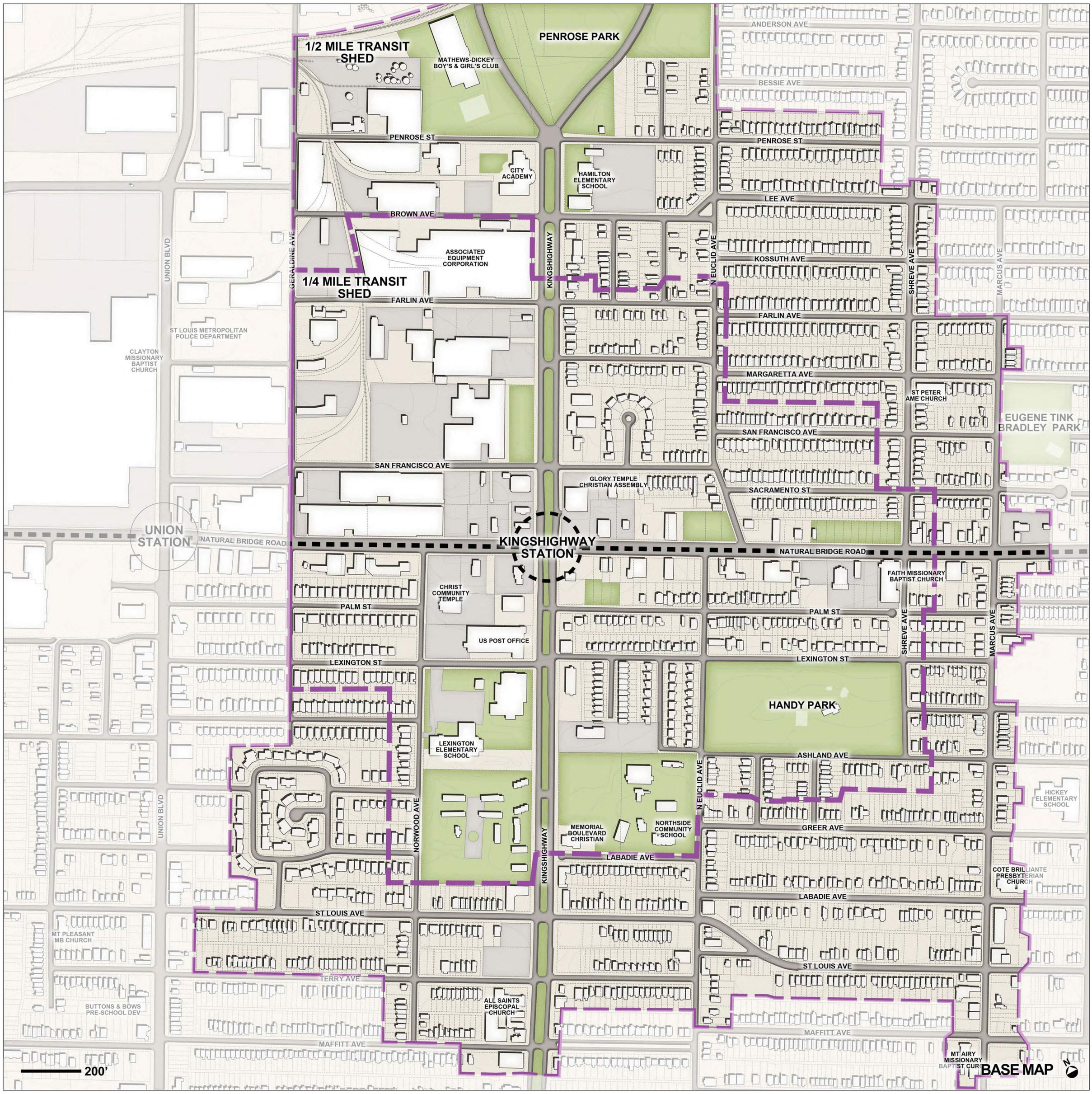
DOWNTOWN STATION AREAS

NEIGHBORHOOD TYPOLOGY INVESTIGATION

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



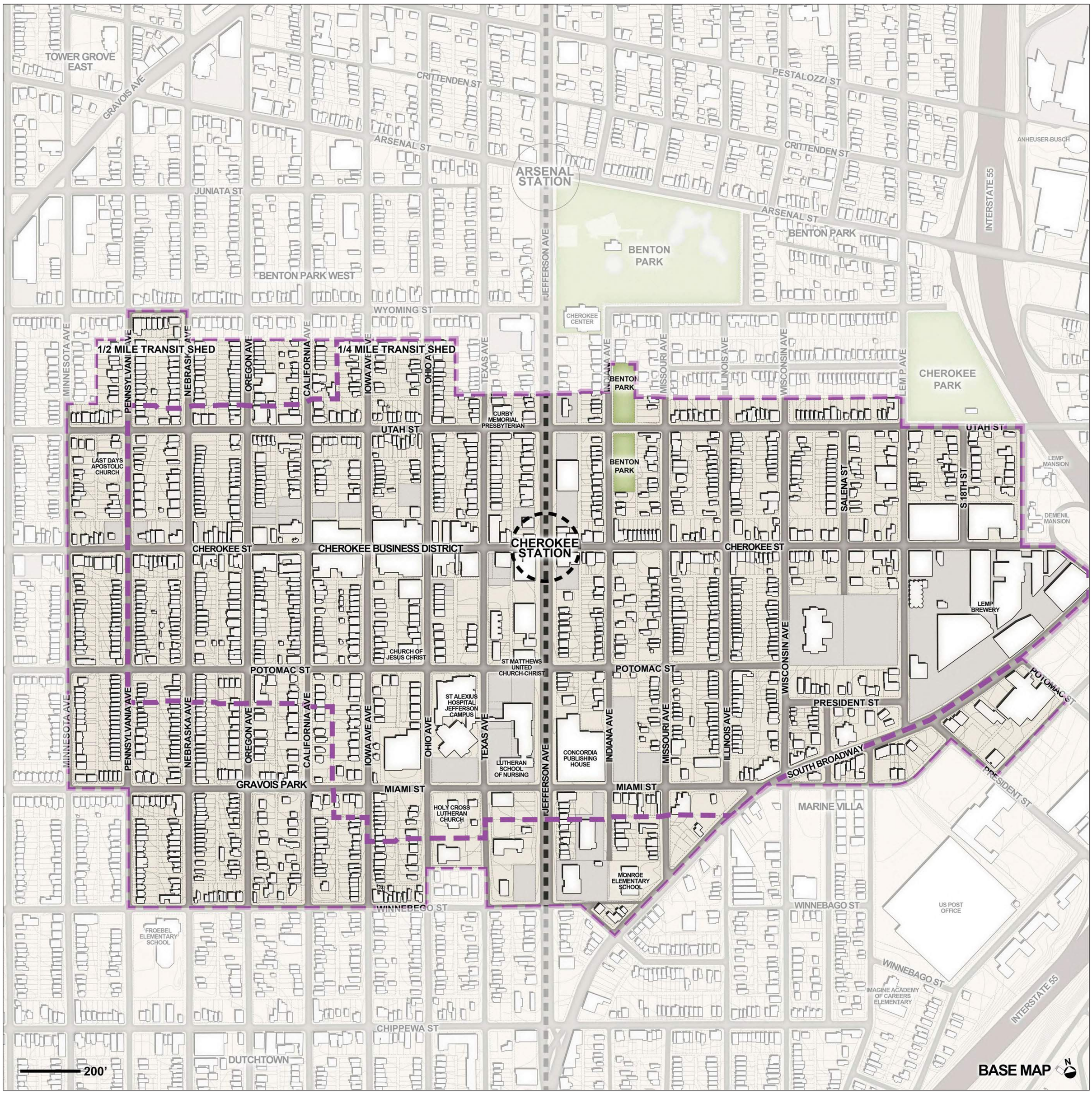
KINGSHIGHWAY STATION AREA

BASE MAP

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



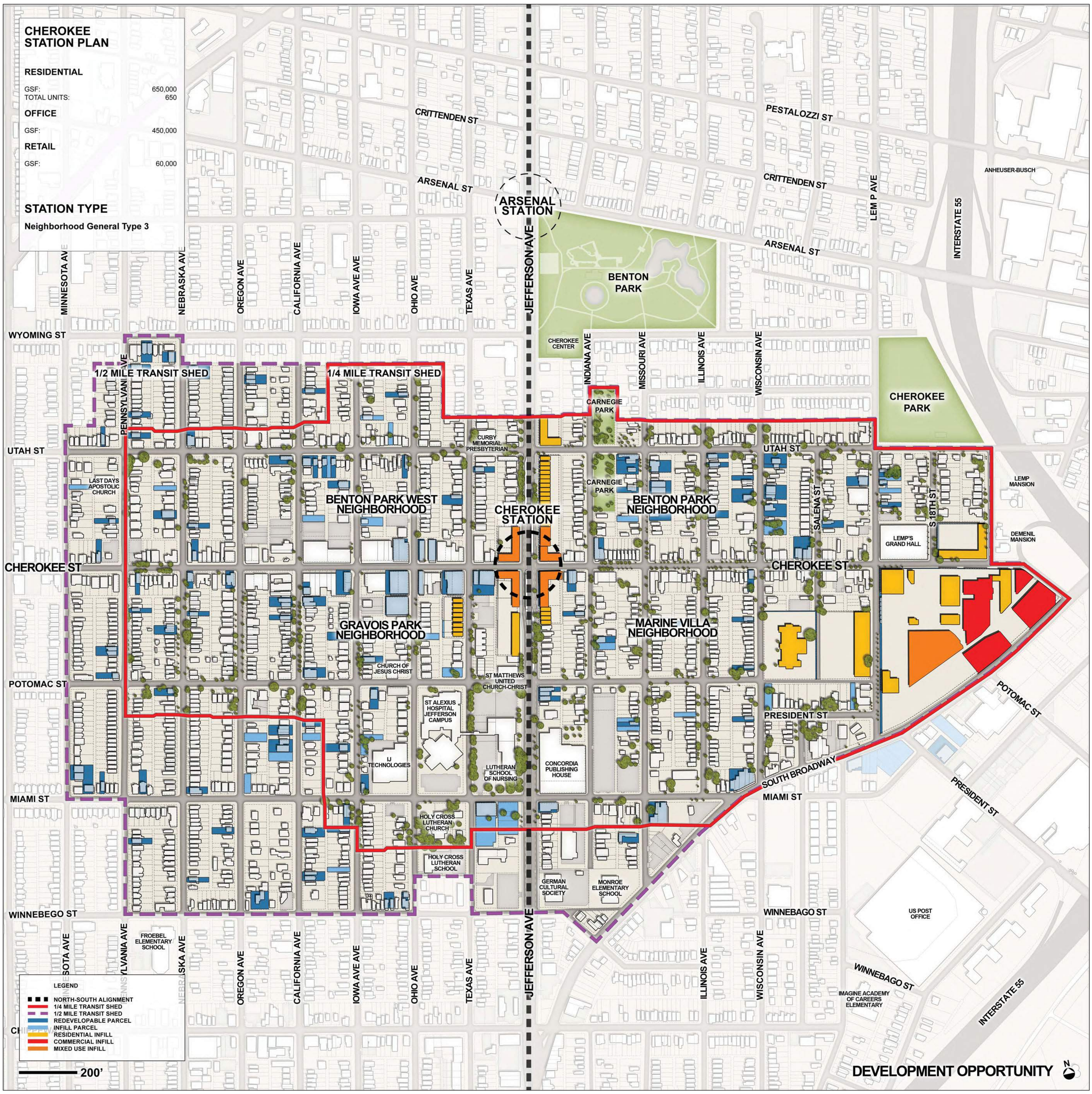
CHEROKEE STATION AREA

BASE MAP

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



CHEROKEE STATION AREA

NEIGHBORHOOD GENERAL TYPE 3

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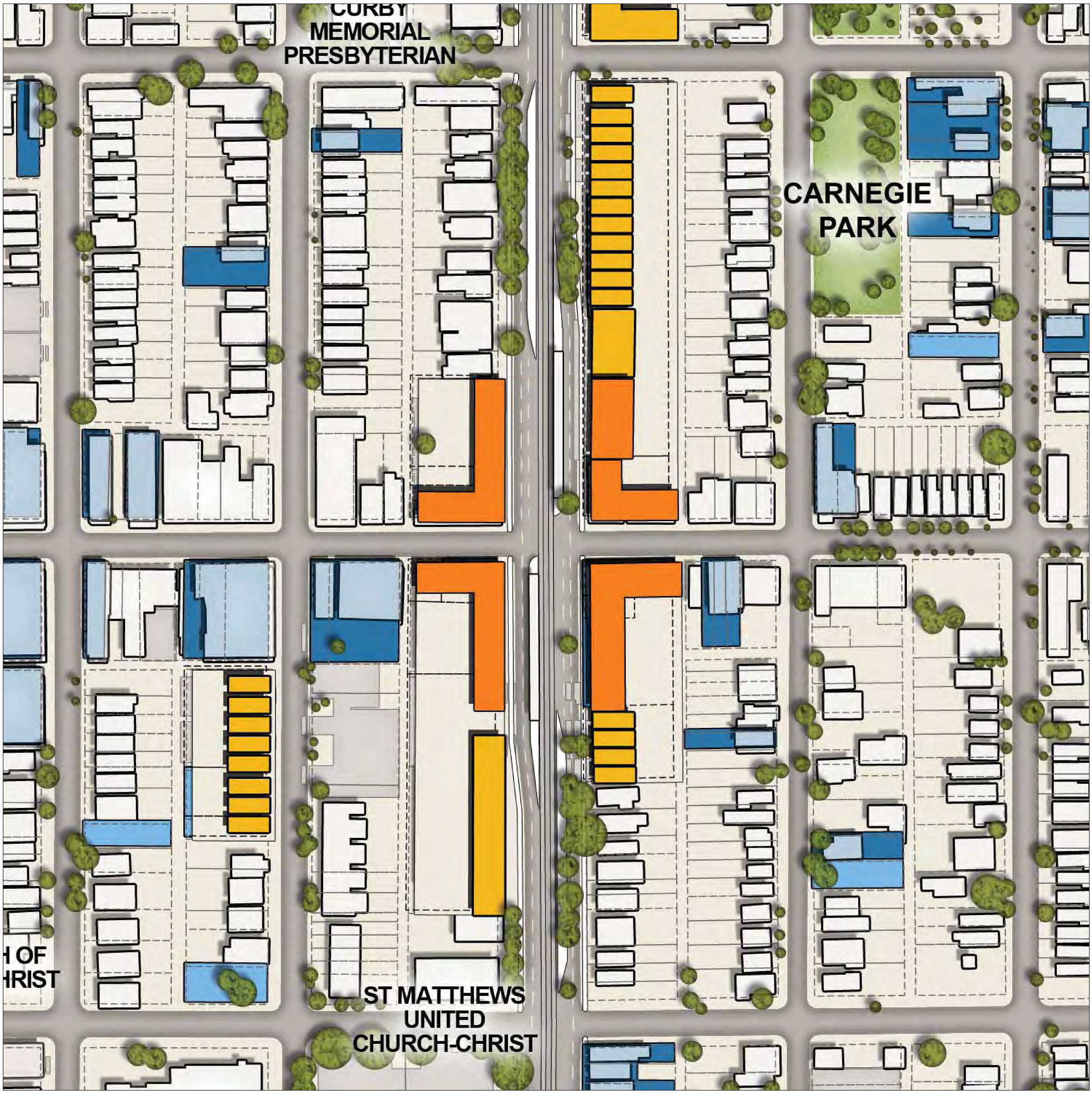


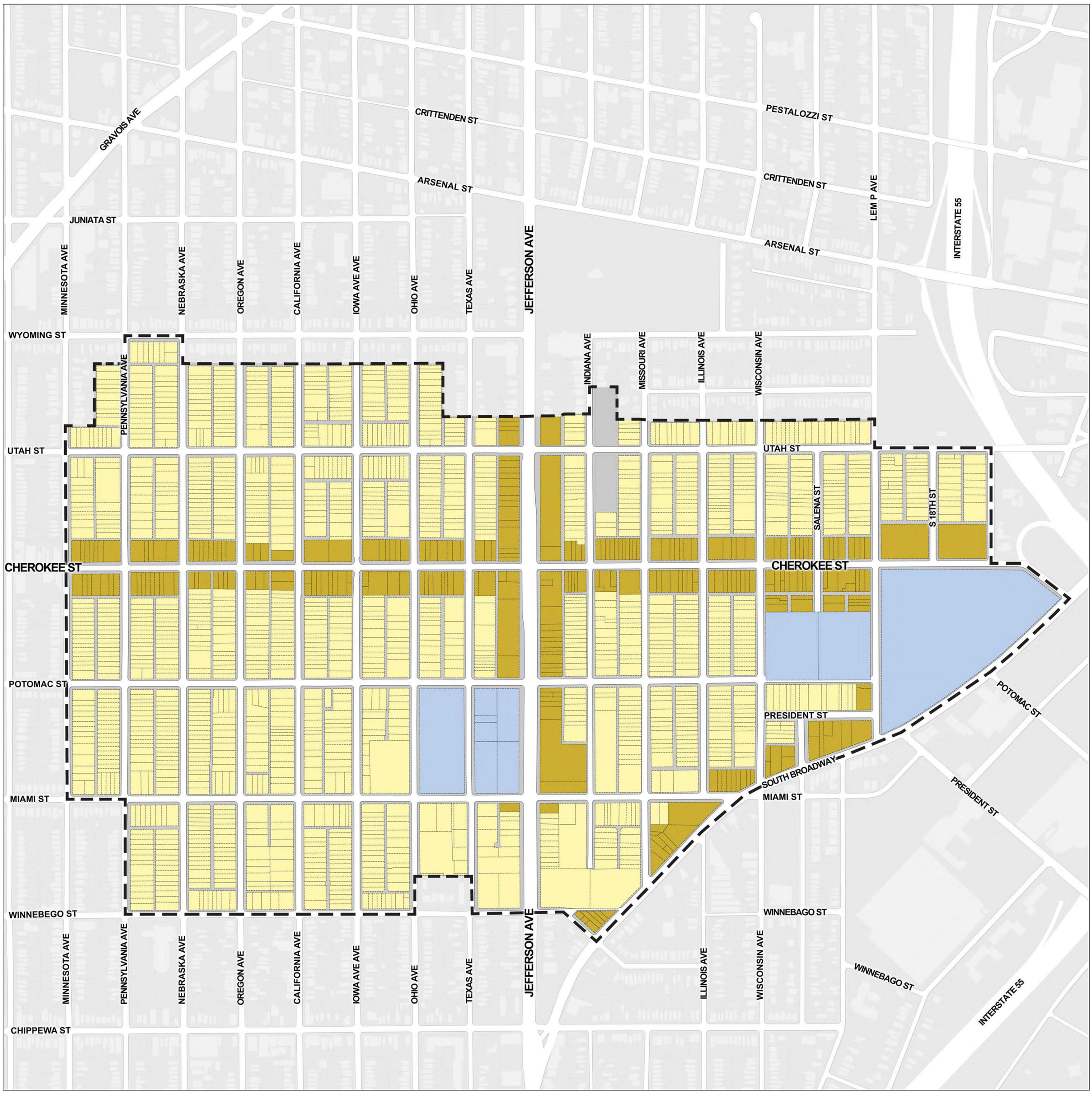
CHEROKEE STATION AREA

STATION ORGANIZATION

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



CHEROKEE STATION AREA

FORM BASED CODE

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TOD STATION AREA PLANNING

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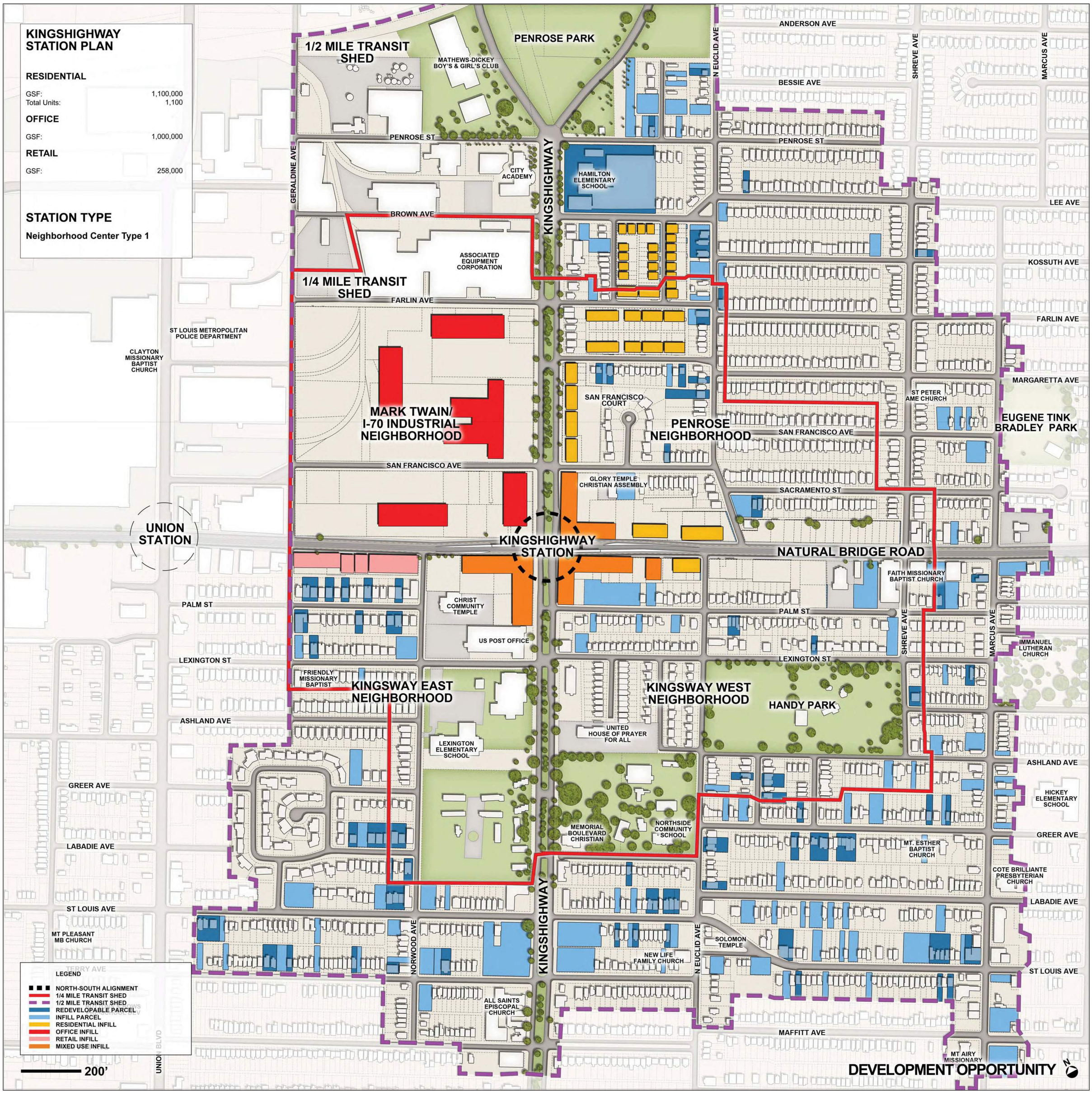

KINGSHIGHWAY STATION AREA

NEIGHBORHOOD CENTER TYPE 1

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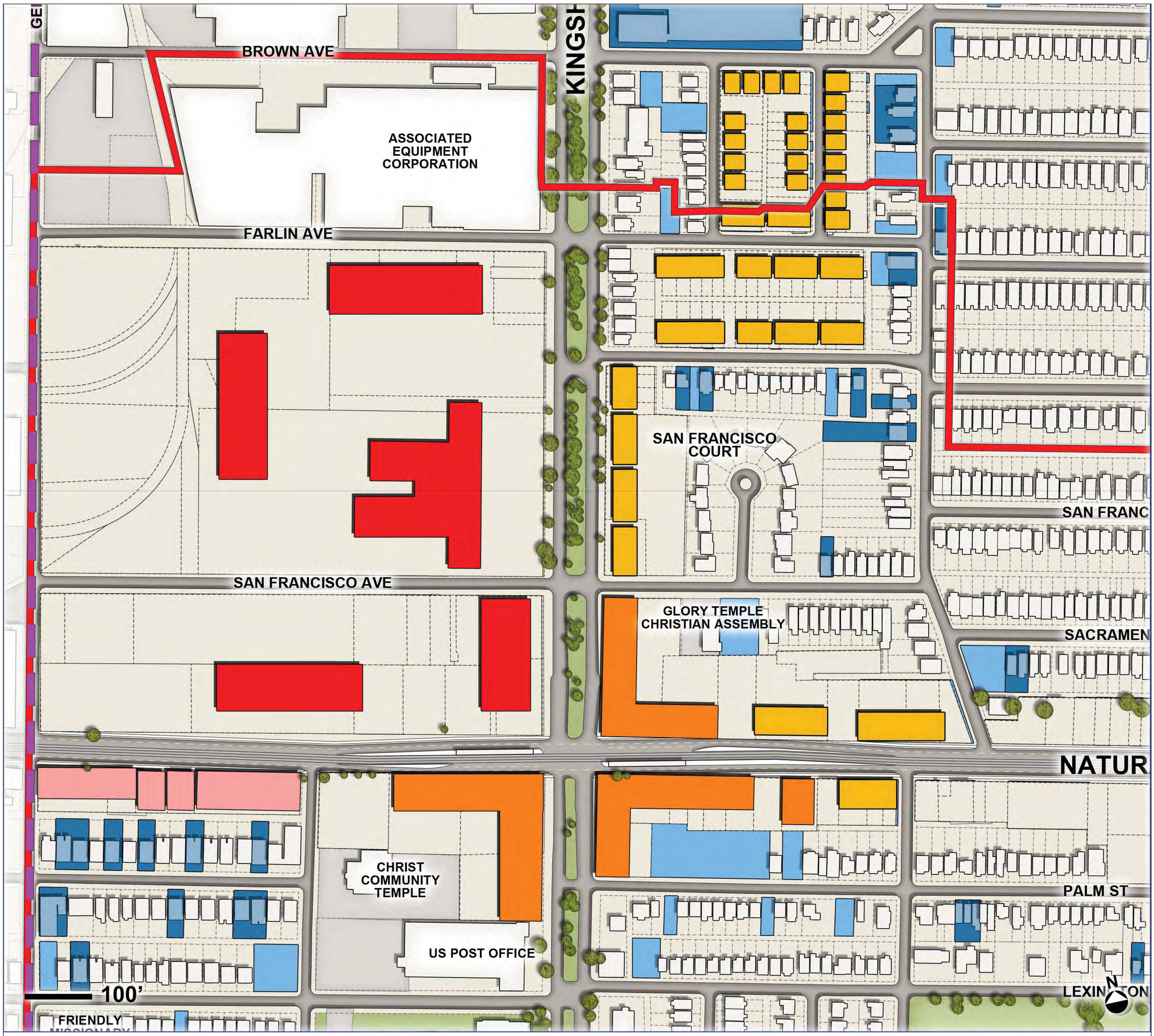


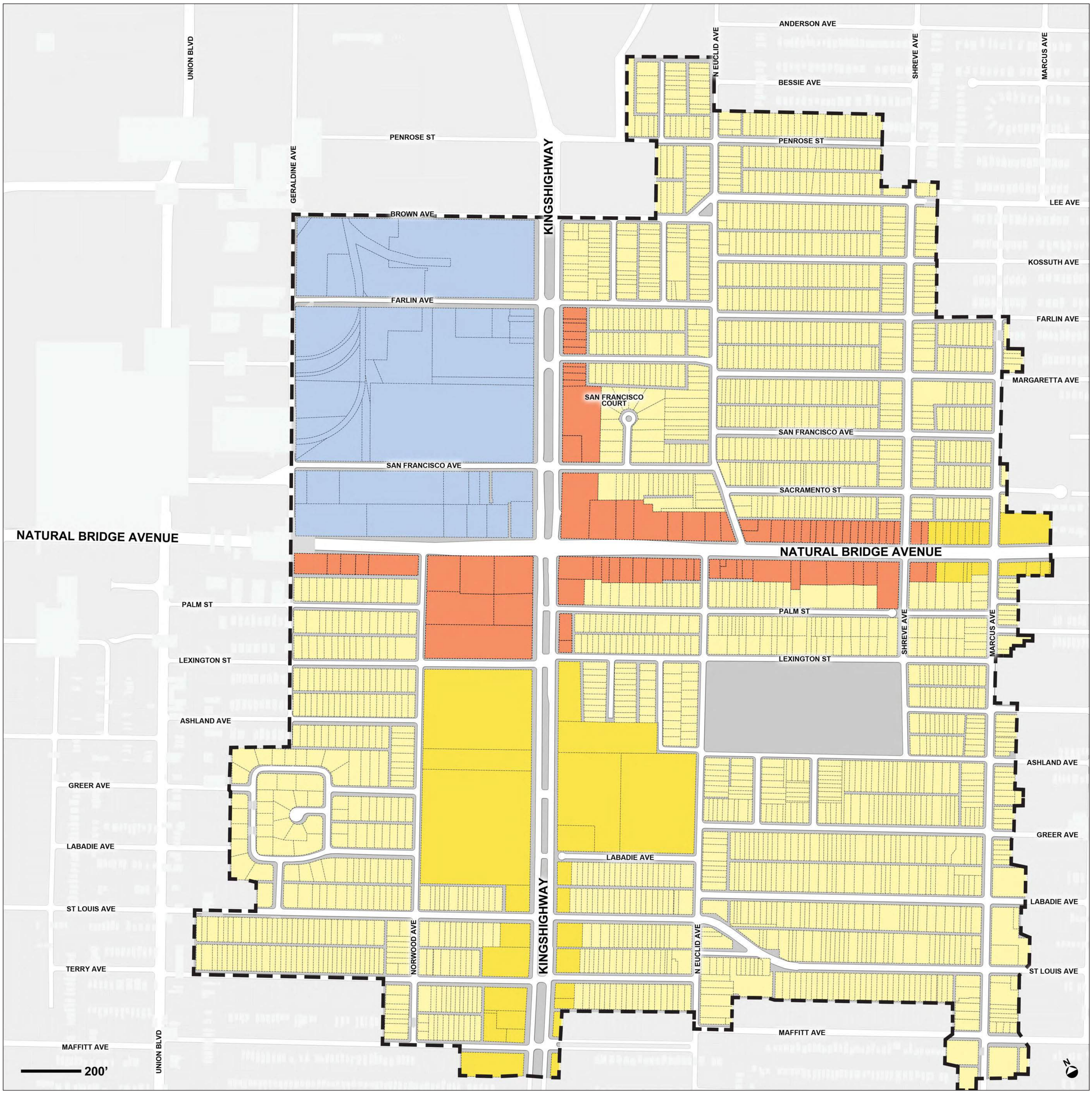
KINGSHIGHWAY STATION AREA

STATION ORGANIZATION

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



KINGSHIGHWAY STATION AREA

FORM BASED CODE

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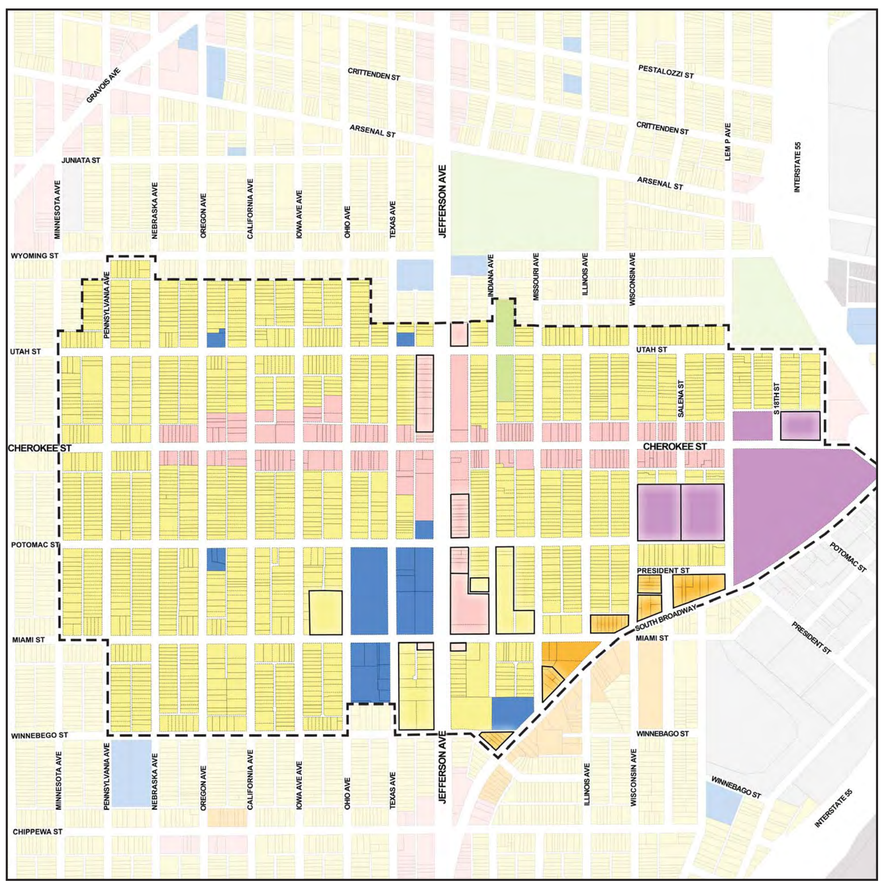
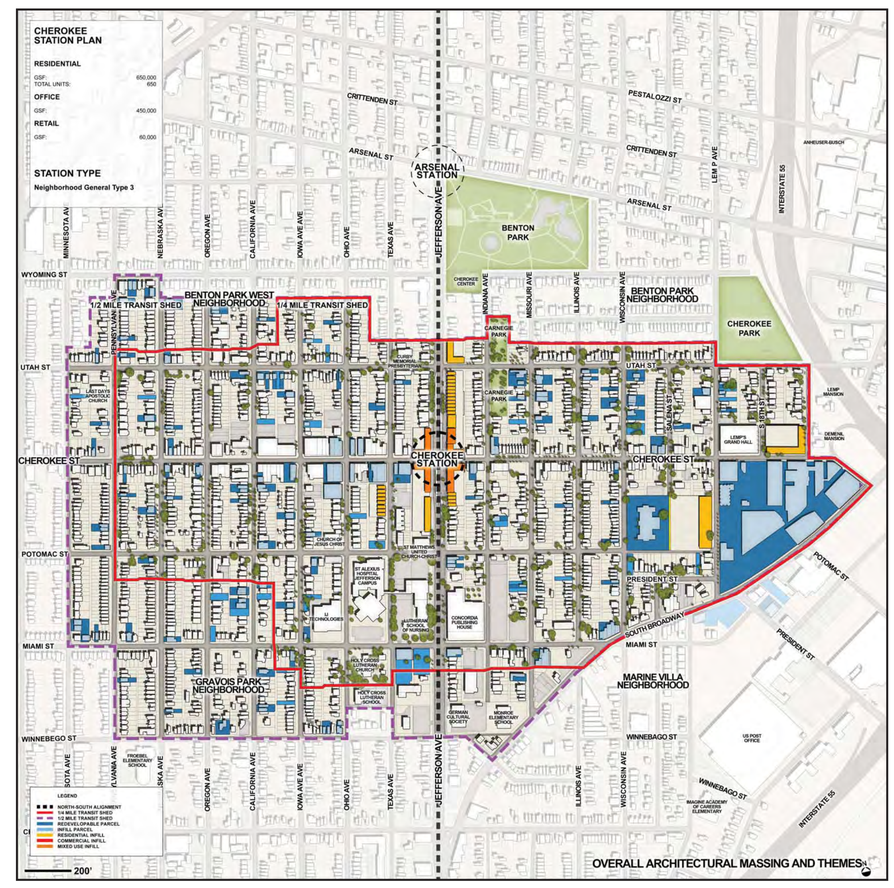
TOD STATION AREA PLANNING

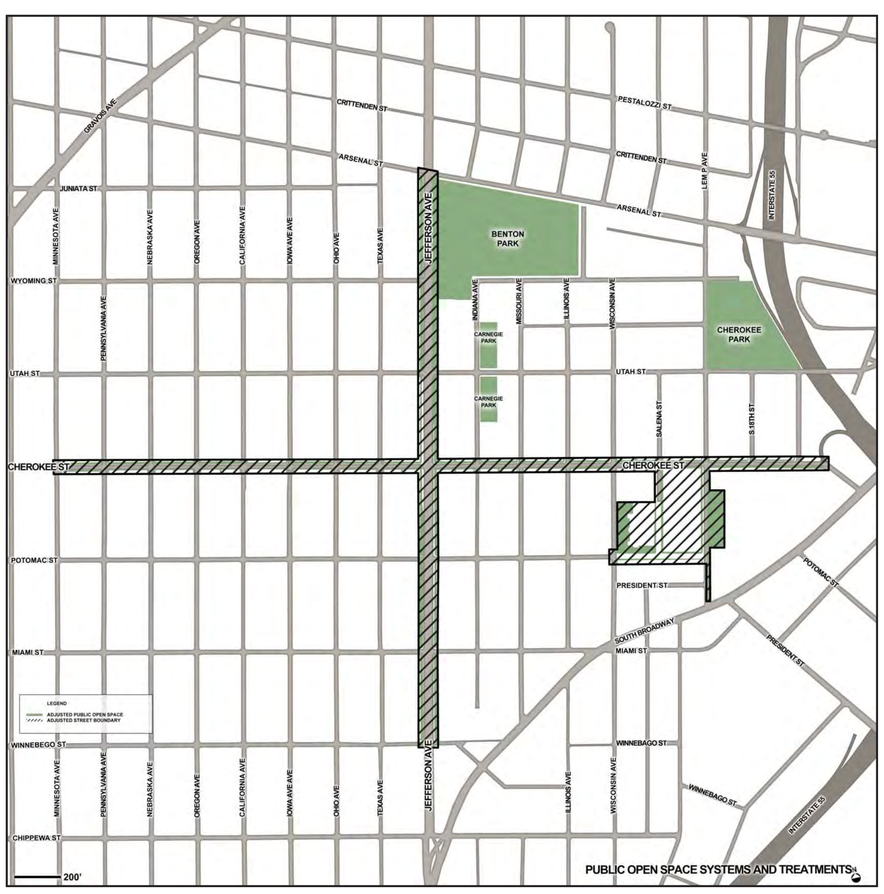
SAINT LOUIS DEVELOPMENT CORPORATION



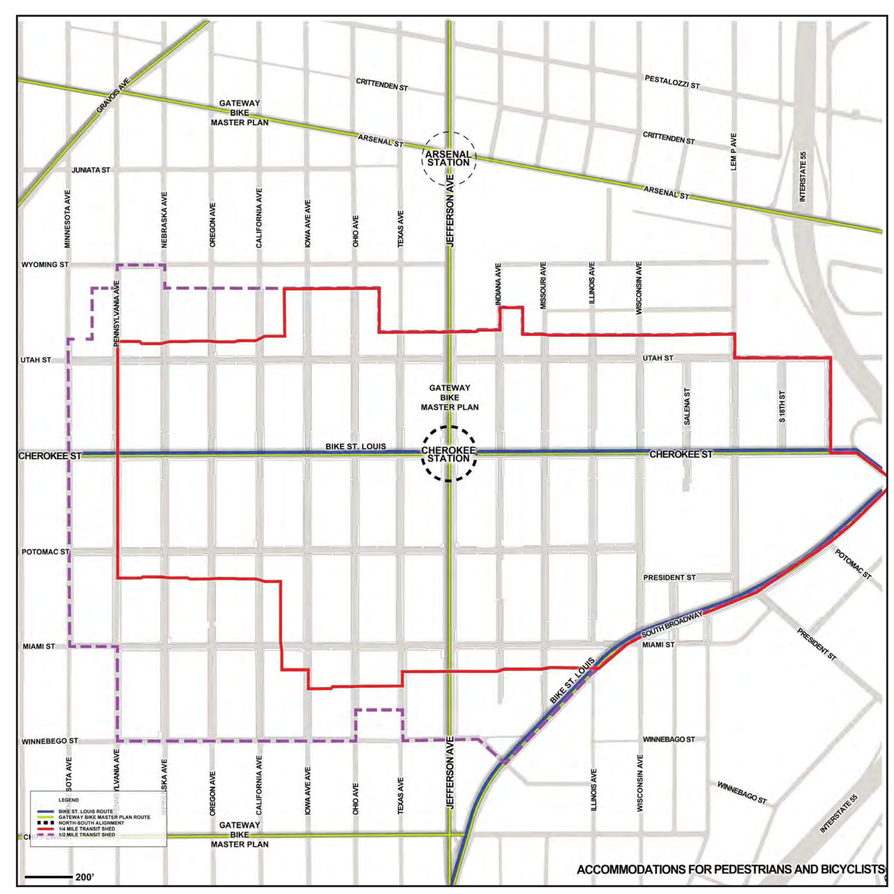
PREFERRED LAND USE PATTERNS AND DENSITY ASSUMPTIONS



OVERALL ARCHITECTURAL MASSING AND THEMES

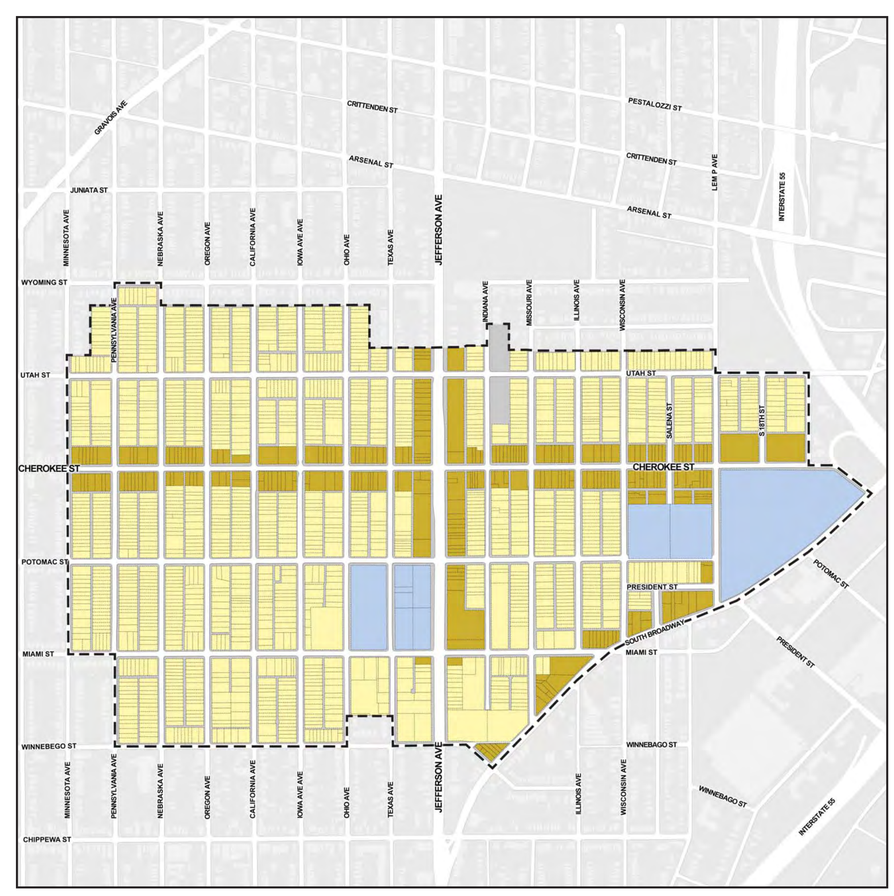


PUBLIC OPEN SPACE SYSTEMS AND TREATMENTS



ACCOMMODATIONS FOR PEDESTRIANS AND BICYCLISTS AND CONNECTIONS TO EXISTING/PLANNED FACILITIES

KEY RECOMMENDATIONS FOR PARKING AND TRANSPORTATION IMPROVEMENTS



FORM BASED CODE AS APPLIED TO 1/2 MILE TRANSIT SHED

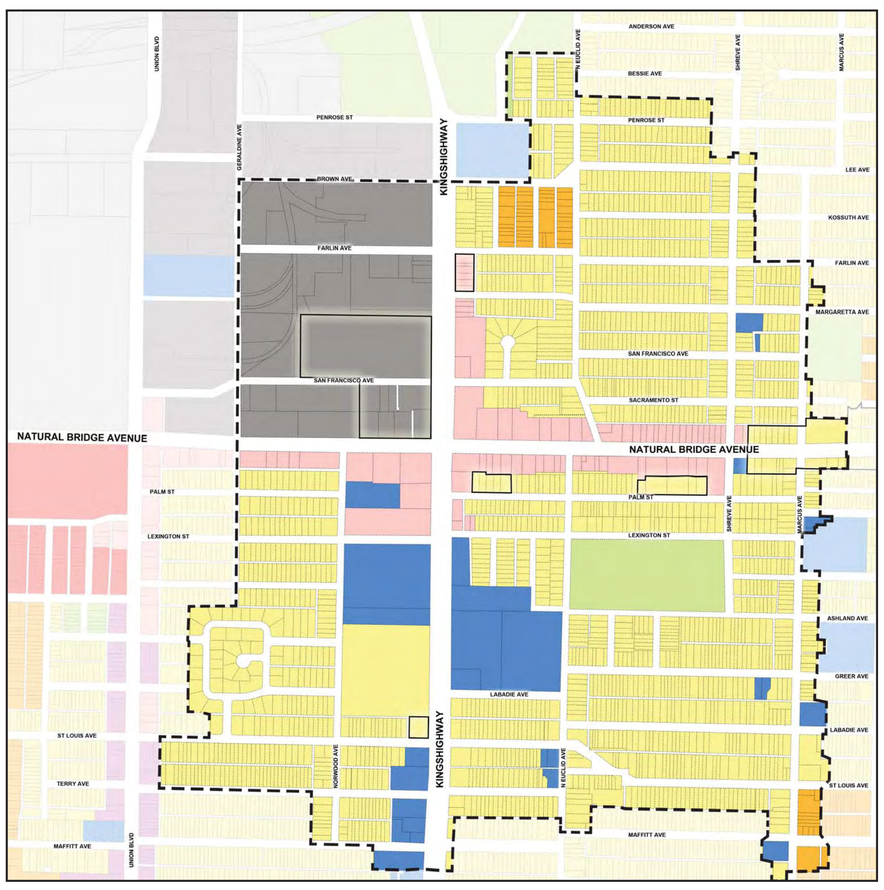
CHEROKEE STATION AREA

PREFERRED STATION PLAN ILLUSTRATIONS

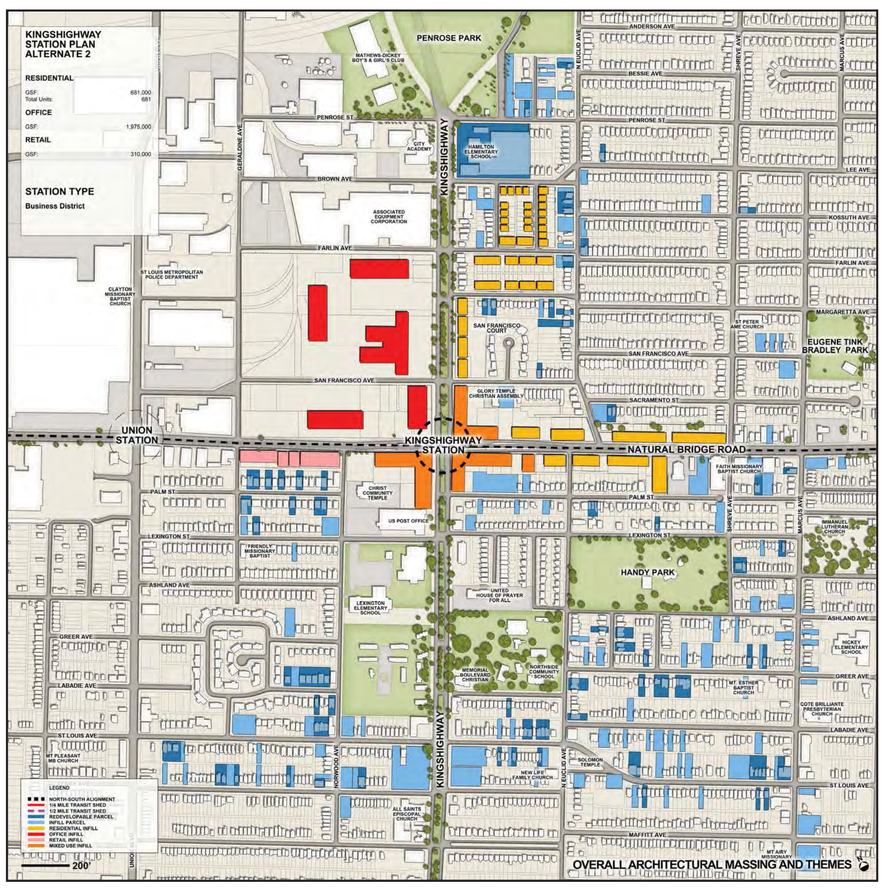
H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION

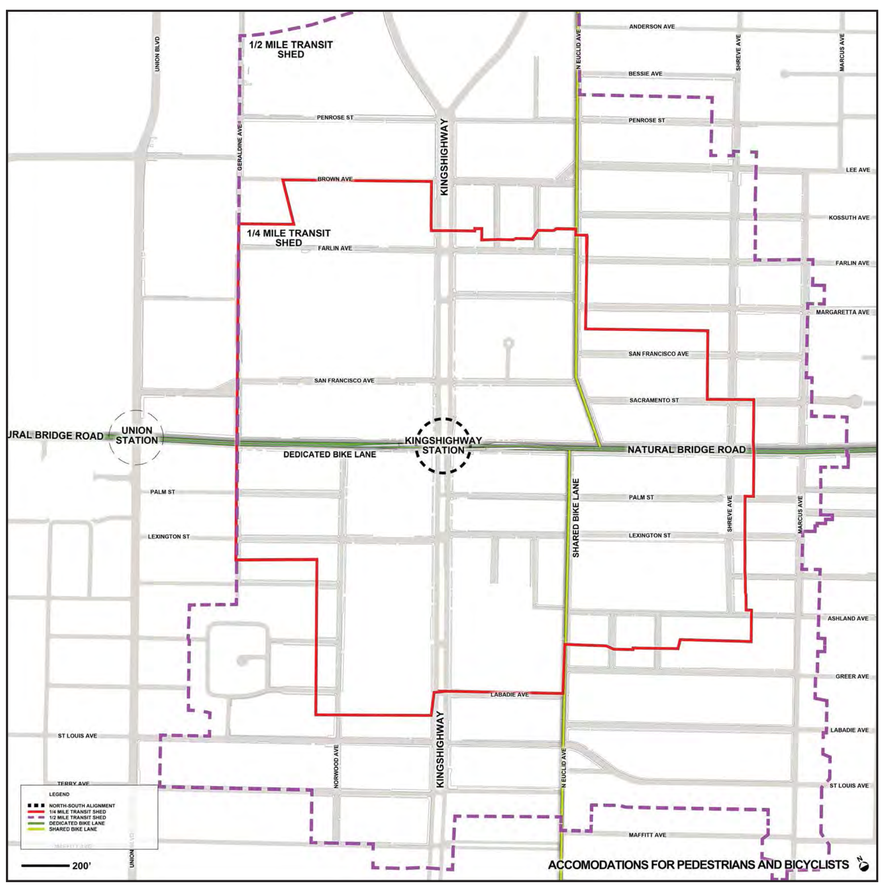


PREFERRED LAND USE PATTERNS AND DENSITY ASSUMPTIONS



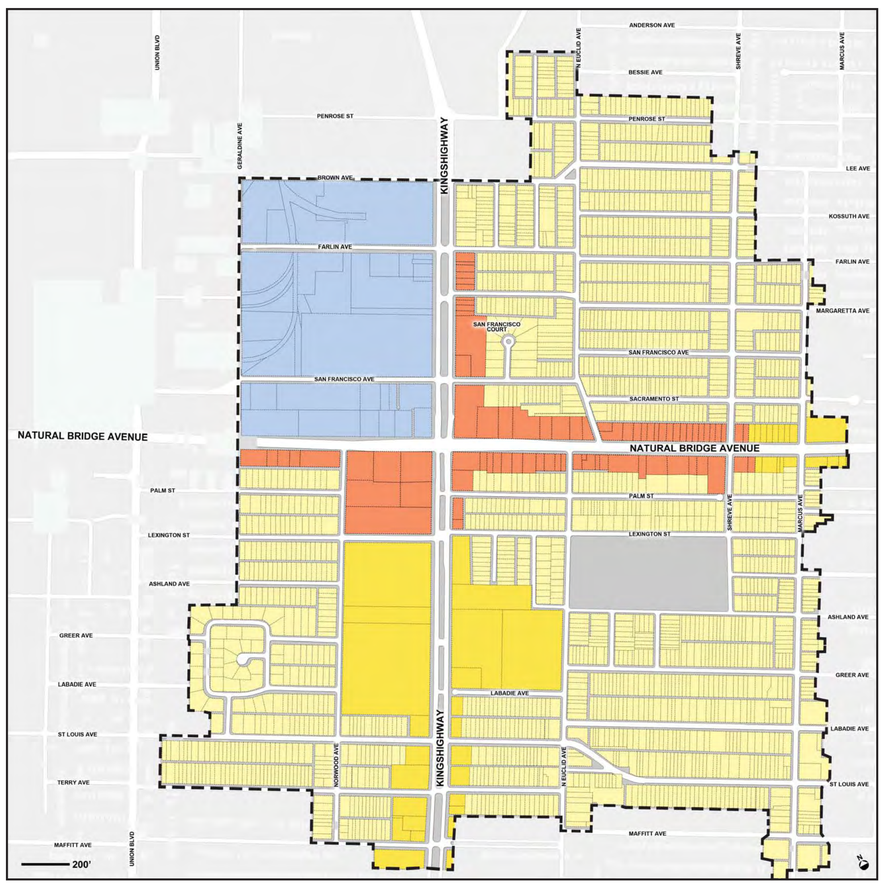
OVERALL ARCHITECTURAL MASSING AND THEMES

PUBLIC OPEN SPACE SYSTEMS AND TREATMENTS



ACCOMMODATIONS FOR PEDESTRIANS AND BICYCLISTS AND CONNECTIONS TO EXISTING/PLANNED FACILITIES

KEY RECOMMENDATIONS FOR PARKING AND TRANSPORTATION IMPROVEMENTS



FORM BASED CODE AS APPLIED TO 1/2 MILE TRANSIT SHED

KINGSHIGHWAY STATION AREA

PREFERRED STATION PLAN ILLUSTRATIONS

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION

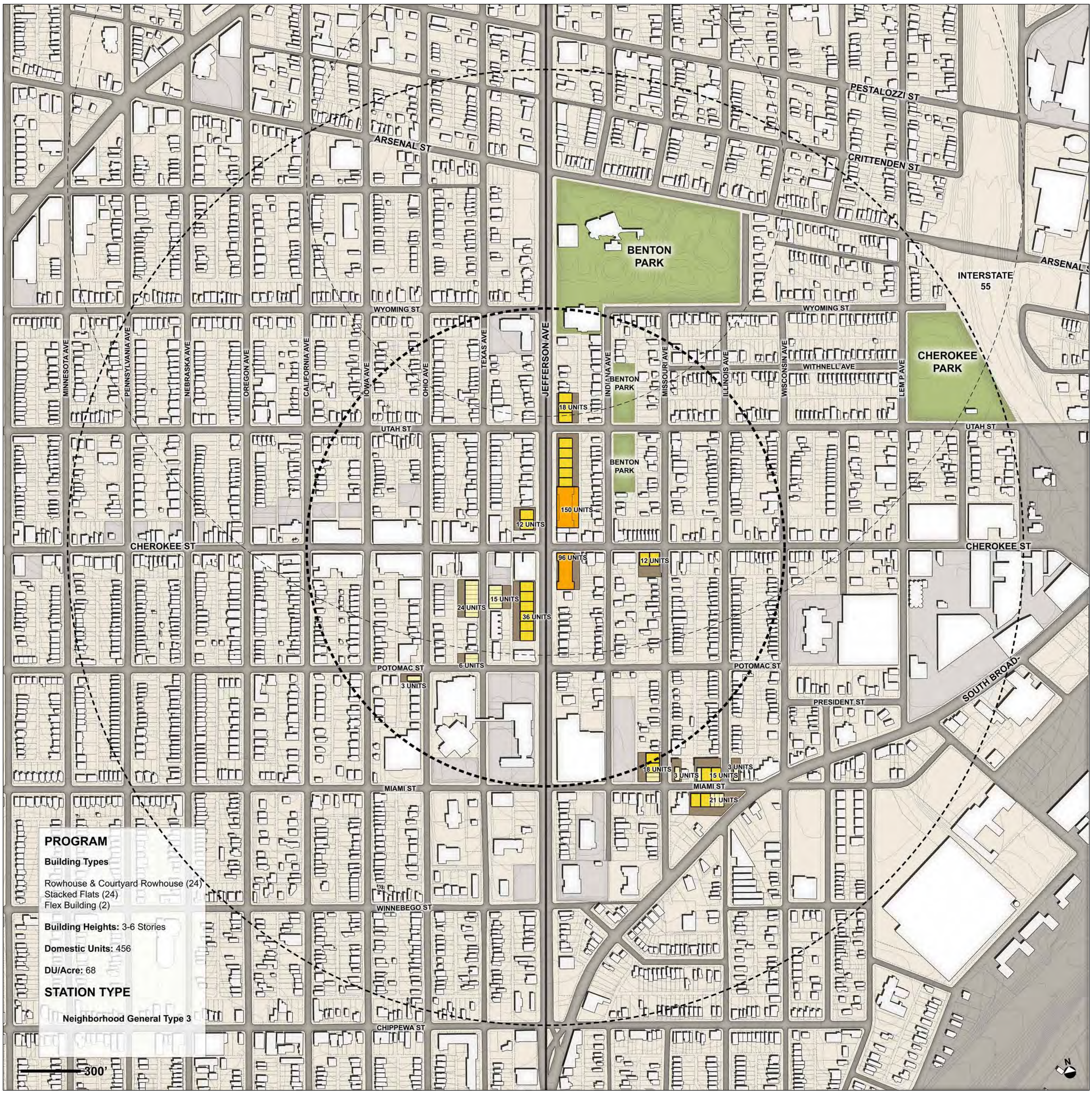
CHEROKEE STATION AREA

ALTERNATE 1

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



PROGRAM

Building Types

Rowhouse & Courtyard Rowhouse (24)
Stacked Flats (24)
Flex Building (2)

Building Heights: 3-6 Stories

Domestic Units: 456

DU/Acre: 68

STATION TYPE

Neighborhood General Type 3

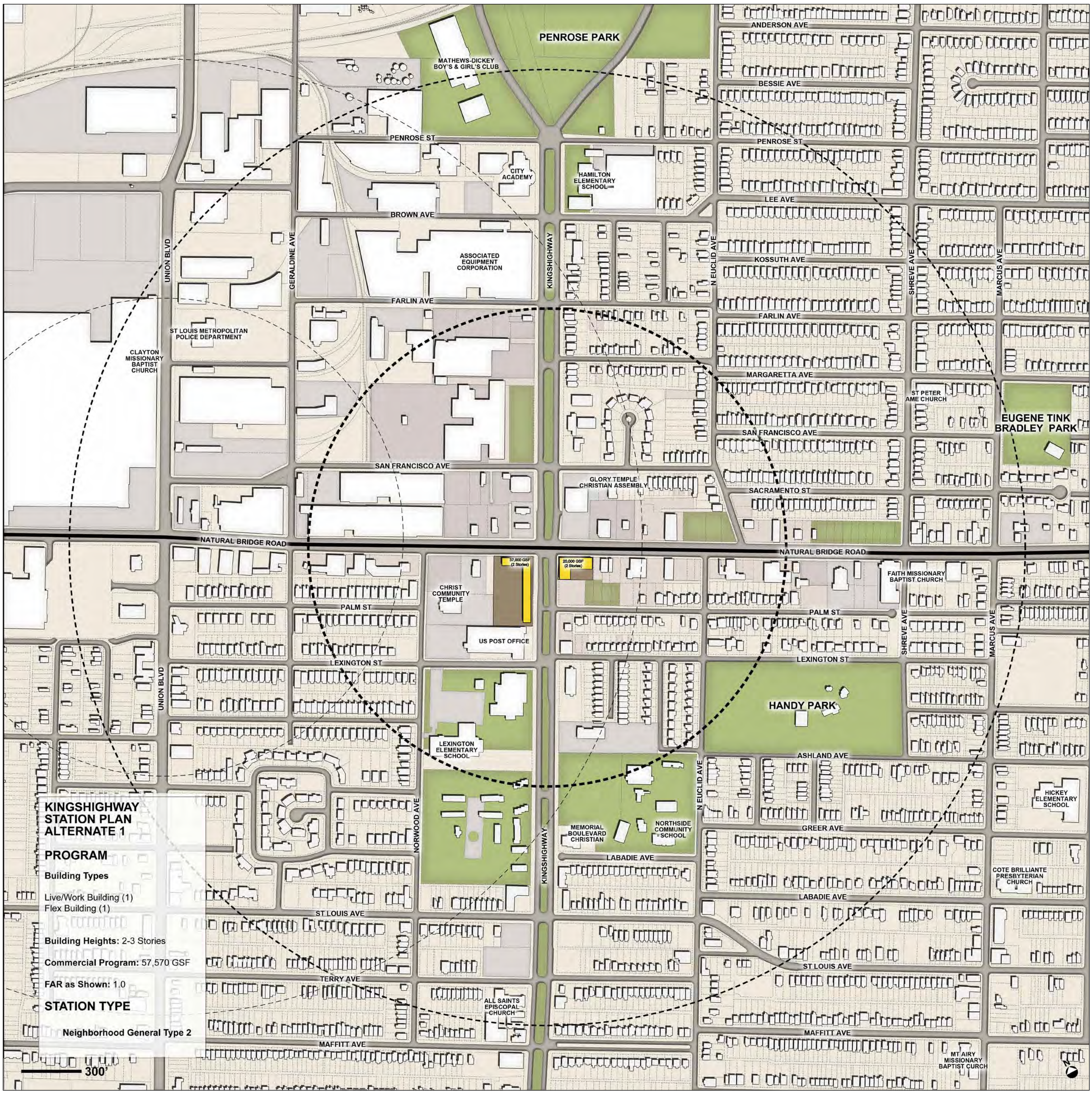
CHEROKEE STATION AREA

ALTERNATE 2

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



KINGSHIGHWAY STATION PLAN ALTERNATE 1

PROGRAM

Building Types

Live/Work Building (1)
Flex Building (1)

Building Heights: 2-3 Stories

Commercial Program: 57,570 GSF

FAR as Shown: 1.0

STATION TYPE

Neighborhood General Type 2

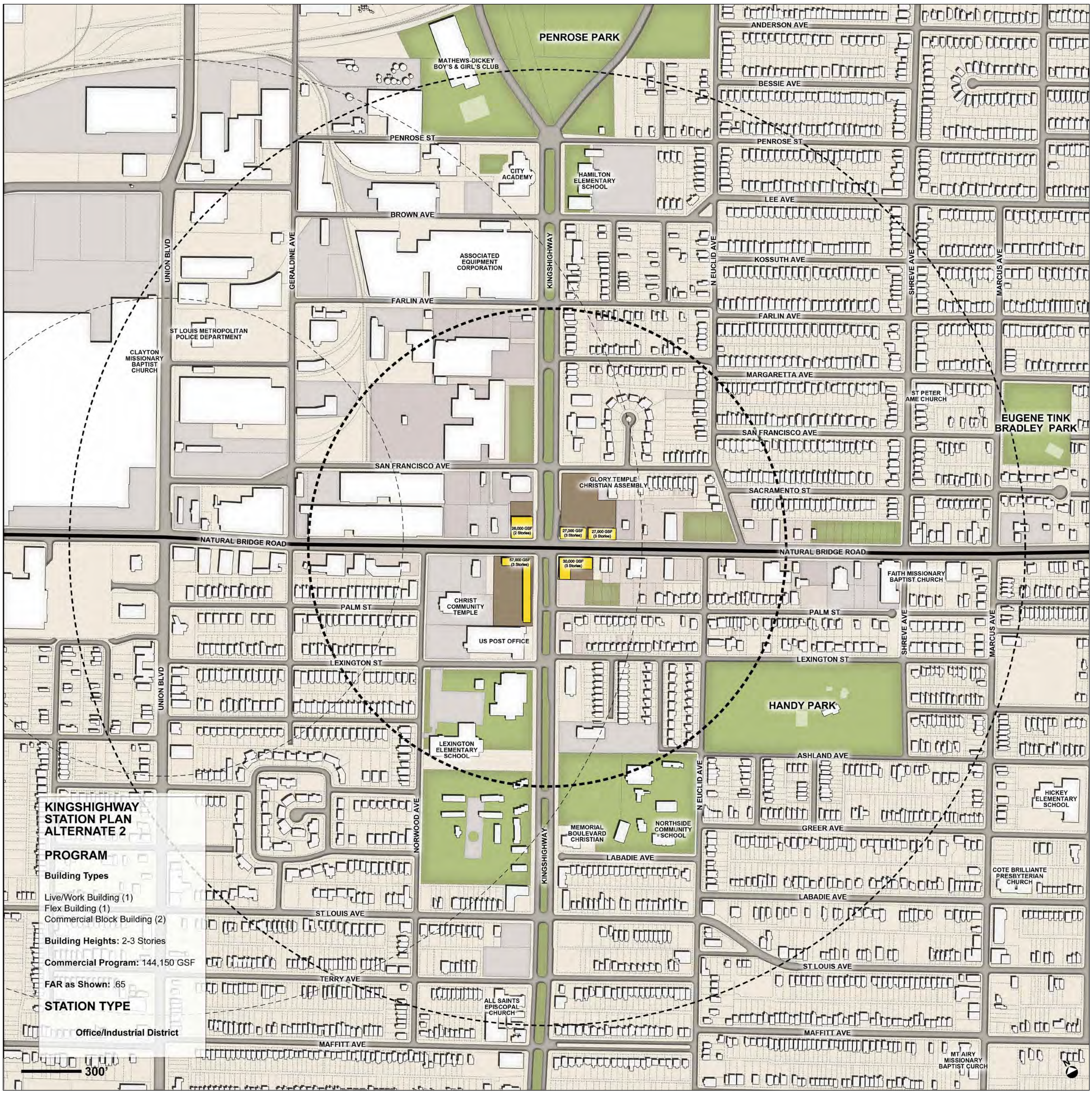
KINGSHIGHWAY STATION AREA

ALTERNATE 1

H3

TOD STATION AREA PLANNING

SAINT LOUIS DEVELOPMENT CORPORATION



KINGSHIGHWAY STATION PLAN ALTERNATE 2

PROGRAM

Building Types

Live/Work Building (1)
Flex Building (1)
Commercial Block Building (2)

Building Heights: 2-3 Stories

Commercial Program: 144,150 GSF

FAR as Shown: .65

STATION TYPE

Office/Industrial District

KINGSHIGHWAY STATION AREA

ALTERNATE 2

H3

Public Engagement:
Vector Communications Group Report

VECTOR
COMMUNICATIONS℠

Northside-Southside Stakeholder Interview Summary for Transit-Oriented Development Station Plans

Submitted:
June 14, 2013

"Advancing Learning, Dialogue and Positive Change."

INTRODUCTION

In May 2013, Vector Communications conducted seven stakeholder interviews with local leaders who represent various interests within the two selected station areas for the proposed Northside-Southside Transit-Oriented Development (TOD) station area plans - Kingshighway and Natural Bridge in north St. Louis City and Cherokee and Jefferson in south St. Louis. These interviews offered key stakeholders the opportunity to envision their respective area's future with a transit station and added transit-oriented development. Stakeholders also provided ideas for evaluating the new developments.

The interview findings have been summarized and are presented on the subsequent pages. The complete transcripts are located in the appendices following this summary.

METHODOLOGY

All interviews were conducted in person at the interviewees' offices to make the meetings convenient and time efficient for the interviewee. On average, the interviews were 60 minutes in duration. The questions presented to the interviewees were developed to provoke thought about what can become of their areas. The discussions focused on benefits, challenges, opportunities and future visions for development in the area. These face-to-face interactions not only facilitated meaningful dialogue, but also provided the interviewer an opportunity to update stakeholders on the plan since the last round of public outreach. Additionally, the interviewer reiterated the breadth and length of the project planning process.

Below is a list of the interviewees.

Northside – Kingshighway and Natural Bridge:

- Ginger Imster – Director of Development, City Academy. Also participating were:
    - Nikki Doughty – Director of Placement and Alumni Relations, City Academy
    - Stephanie Dooley – Director of Admissions, City Academy
- Barbara Washington – Mathews-Dickey Boys and Girls Clubs
- Alderwoman Sharon Tyus – 1st Ward, City of St. Louis
- Mark Vogel – Board Member, Citizens for Modern Transit (CMT)

Southside – Cherokee and Jefferson:

- Alderman Craig Schmid – 20th Ward, City of St. Louis
- Jason Deem – President, Cherokee Station Business Association
- Nancy Cross – Board Member, Citizens for Modern Transit (CMT)

Additional stakeholders were engaged, but unavailable to be interviewed:

- Alderman Kenneth Ortmann – 9th Ward, City of St. Louis
- Hilario Vargas – Owner, La Vallesana Restaurant - 2801 Cherokee

INTERVIEW SUMMARY

Question 1 – Benefits

If developing a MetroLink station spurs new developments in the area, how is this a benefit to residents, businesses, and visitors?

Kingshighway and Natural Bridge Station Area:

Most Repeated Responses:

- Demonstrates a united/inclusive City
- Leverages community's rich history
- Provides in-fill opportunities for housing stock development

Additional Responses:

- Increases local jobs
- Improves access to non-local jobs
- Changes perception of neighborhood
- Increases ridership
- Attracts more visitors/pedestrians
- Attracts diverse businesses and services
- Provides faster, more efficient transit
- Improves look of neighborhood
- Provides a corridor ready for development

Cherokee and Jefferson Station Area:

Most Repeated Responses:

- Spurs additional entrepreneurship
- Creates a unique destination for visitors
- Attracts new residents

Additional Responses:

- Compliments downtown developments
- Enhances Cherokee as the downtown for South City
- Utilizes dormant infrastructure assets (i.e. Lutheran Hospital underground garage)
- Provides daytime services and retail for local residents
- Increases residential density
- Increases business diversity

In both station areas, stakeholders interviewed expressed that a new MetroLink station and subsequent transit oriented development would vastly benefit the surrounding communities. In the north, stakeholders identified benefits that would bolster the

established neighborhoods. These benefits largely related to removing vacant land, rehabilitating derelict property, providing local jobs and access to regional jobs, and attracting more service and retail businesses to the neighborhood. Stakeholders agreed that planning for and attracting new development to the area would help to change perceptions that north city is excluded from overall City development opportunities.

In the south, stakeholders were focused on benefits such as increasing entrepreneurship, providing a unique regional destination and attracting new residents. Those interviewed expressed that transit oriented development would help accelerate the business, retail, and residential growth that is organically occurring in the neighborhood. Existing infrastructure was also listed as a benefit since stakeholders would like to see redevelopment and rehabilitation of some neglected community infrastructure assets.

Question 2 – Challenges

If developing a MetroLink station spurs new developments in the area, how is this a challenge to residents, businesses, and visitors?

Kingshighway and Natural Bridge Station Area:
Most Repeated Responses:

- Process of Gentrification
- Current lack of business type diversity
- Residents fear of change and the unknown / lack trust in the process

Additional responses:

- More noise
- Increased traffic congestion
- Increased foot traffic = less safety
- Reducing number of businesses catering to drivers
- Limited contiguous acreage available
- Loss of customers due to construction
- Too low standards for supplying consumer needs
- Rising cost to businesses and residents
- Less convenient parking

Cherokee and Jefferson Station Area:

Most Repeated Responses:

- Marketing opportunities for developers
- Adding businesses which fit the community: independent and creative versus national chain stores
- Acquiring land for significant development

Additional Responses:

- Dividing Cherokee street via Jefferson Ave. (Antique Row vs. New West Cherokee)
- Gaining buy-in from developers
- Promoting sustainable business development
- "NIMBY – Not In My Back Yard"
- Increasing traffic congestion around station
- Addressing density with alarming foreclosures in the area

While stakeholders seemed mostly positive about the potential impacts of a new MetroLink station and developments, they also identified specific physical and perception challenges. In both areas, assembling landmass for new developments was a concern. Because these areas are urbanized, there is limited available land to make sizeable new developments. This challenge was particularly emphasized in the north, where stakeholders revealed a desire for some "big box" types of retail opportunities.

Gentrification was also identified as a potential challenge in the north. Stakeholders welcome new development, but were clear that housing and commercial values would ultimately rise and potentially price new and/or old residential and commercial tenants out of the area. Other challenges of note were attracting developers, including residents throughout the process, easing resident's fears of the unknown, and drawing a diverse mix of new retail options.

In the south, stakeholders were concerned about attracting businesses that fit the fabric of the growing, artistic community. The neighborhood currently has an organic homegrown community of artists and business owners that have invested in the area and wish to remain as new development occurs. Another challenge could be to physically and psychologically connect east (Antique Row) and west (artistic/new Cherokee) ends of Cherokee Street across Jefferson. Stakeholders thought a new MetroLink line cutting through the two street ends could further increase the perceived and existing (Jefferson Avenue) divide between the two areas.

Question 3 – Types of Businesses

What types of businesses would you like to see around this station?

Kingshighway and Natural Bridge Station Area:

- Resident focused: Hardware store / medium sized grocer / coffee shop
- Entertainment venues: live music / casual restaurants
- Big box retail: Burlington Coat Factory / Old Navy
- Services: clinic / mechanic / bike shop / office supply / quality daycare

Cherokee and Jefferson Station Area:

- Services: Bank / Culinaria / university extension / Walgreens / CVS
- Independent Businesses
- Resident focused: hardware / furniture / clothing
- More restaurants: non-Mexican and non-national chains

In both areas, stakeholders were clear that attracting new resident-focused businesses was a key goal. For example, both desired a medium sized grocery store along the size and scale of the downtown St. Louis Culinaria by Schnucks. Other similar business types were a hardware store and diverse restaurants.

However, in the north, stakeholders stated a desire for some larger retailers like a Target, Office Depot or Burlington Coat Factory. Other desirable businesses included services like a mechanic, bike shop, clinic and day care. Stakeholders were mindful that current businesses in the corridor heavily cater to cars and that any transit-oriented businesses would be a shift for patrons and competitors.

Along Jefferson and Cherokee, desired businesses would cater to the current residents by offering products such as furniture along with daytime accessible services and hours. In addition, it was especially emphasized that new businesses retain the neighborhood's homegrown atmosphere and that the plan limit efforts to attract more national chains.

Question 4 – Types of Housing

What types of housing would you like to see around this station?

Kingshighway and Jefferson Station Area:

- Apartments: Senior living / 2 to 3 bedroom condos
- Mixed-use buildings: 2 to 4 stories tall
- Renovated existing housing

Cherokee and Jefferson Station Area:

- Smaller units to cater market to young professionals
- Fewer, smaller rental units: long term renters / owners = stabilized neighborhood
- Renovated existing housing
- Modern new buildings to contrast historic
- Mixed-use buildings: 3 to 4 stories along Jefferson
- Housing that moves rental / ownership from 90/10 to 50/50

In the north corridor, housing for seniors and larger families was mostly desired. Stakeholders were open to new in-fill and rehabilitated housing developments that fit the character of the existing neighborhoods. Mixed-use developments would be

welcome, especially on some of the more narrow streets within the corridor, however not particularly along the main front streets – Kingshighway and Natural Bridge.

In the south corridor, stakeholders are grappling with a particular challenge of housing foreclosures. The neighborhoods are experiencing more vacancies and an increase of transient tenants, which hinders community building. The desired mix of housing for this area would include renovated existing structures and larger units that cater to families and longer-term renters and homeowners. Ideally, stakeholders want to create a housing pipeline that moves tenants from small rental units - that are currently in demand - to homeowners within the neighborhood.

Question 5 – Evaluation Criteria

What should the team consider when evaluating a Transit-Oriented Development plan for this area?

Kingshighway and Natural Bridge Station Area:

Most Repeated Responses:

- Housing renovation rather than ALL new development
- Minimizing resident displacement
- Safety

Additional Responses:

- Variety of Uses: residential, business, service
- Neighborhood Connectivity
- Users: mixed income, ages, abilities
- Benefits for existing neighbors
- Accessibility: ADA
- Multi-modal: connect to bike, bus, taxi, parking
- Noise reduction for neighbors
- "Ride Metro": Programming
- Elimination of vacant land

Cherokee and Jefferson Station Area:

Most Repeated Responses:

- Walkability and connectivity to neighborhood
- Existing development occurring organically: potential farmers market, shipping container café, etc.
- Limited available land

Additional Responses:

- Continued access to new development opportunities for small independent businesses
- Multi-modal access to station
- Segmenting / diversifying new developments of cultural and service versus commerce
- Commuter parking
- Possibly moving station to Chippewa and Jefferson for better access
- TOD could make this a destination spot for explorers

Stakeholders were asked to provide evaluation criteria for the team to consider while developing the plan. Northern corridor interviewees emphasized that the team consider available housing rehabilitation projects in addition to new construction. As potential gentrification was a main challenge identified, the team should evaluate how development can occur without displacing many residents or unraveling the established sense of community.

Fitting the existing neighborhood culture was also an important consideration in the southern corridor. Stakeholders emphasized the organic feel of the community and encouraged the team to build in programming to ensure developers buy-in to this establishing neighborhood culture. Additional criteria would focus on providing a healthy mix of service related businesses, cultural institutions and retail establishments; multi-modal access to the station; and well-maintained walkable connection paths through the neighborhoods.

Question 6 - Make You a Commuter

What could make this station and MetroLink part of your commute?

Kingshighway and Natural Bridge Station Area:

- Ease of Use
- Safety
- Multimodal Access
- Access to desired amenities: retail, dining, services
- Built-up environment

Cherokee and Jefferson Station Area:

- Access to sustainable and neighborhood focused retail
- Easy access
- Connection to downtown
- Variety of developments: dining, services, independent retail
- More destination area
- Short and consistent wait times

Both sets of stakeholders were comprised of transit riders and non-riders. When asked, most were positive that building a MetroLink station in the area closer to their home or business would entice them to ride more often. Easy access and a built-environment with desirable services, retail and dining options is key to encouraging them to ride more often. Safety measures would be a top priority, including visible safety officers, lighting, and pedestrian density. In addition, stakeholders stated that having an easy connection to other parts of the region, including downtown, would be a major benefit.

Question 7 – Vision

What is your vision for this community in the next 10 to 20 years? What will the news say about Cherokee / Kingshighway in 10 to 20 years?

Kingshighway and Natural Bridge Station Area:

- Hotbed of innovation and urban revitalization – destination for visitors
- Case study for "Courage, Faith, Vision, & Integrity"
- Families get everything they need close to home
- Safe neighborhoods conducive to business development
- Commerce strong and growing in North City

Cherokee and Jefferson Station Area

- Vibrant, diverse community with something for everyone: housing, amenities, public spaces
- Cherokee has arrived and is developing more in its next phase of renewal
- Public art and innovation make Cherokee MetroLink a destination for the region

In the north, stakeholders want to see the community revitalized and become a destination for visitors. The vision is to enhance what is currently an established community with rich history, generations of African American families, a thriving middle-class, and a bright future. With its location close to a major regional highway and minutes from other destinations like Grand Center, Barnes Jewish Hospital, and the Central West End, stakeholders see this area as prime real estate for new residents and businesses to flourish.

On the opposite end, stakeholders wish to see the artistic vibe and diversity of the Cherokee community enhanced by new developments that fit the character of the area. They view the future of this area as a destination within the region for homegrown arts and culture where there is "something for everyone."

LONG-TERM STAKEHOLDER ENGAGEMENT

The Northside-Southside MetroLink expansion is a long-term process that will occur over many years and in many phases. Thus far, the City and its consultants have worked together with stakeholders and the community to develop the best option for the City and for the individual neighborhoods impacted. Throughout a long-term planning process, maintaining public interest and engagement can be a challenge. The effort to keep the public engaged can: 1. Maintain stakeholder's sense of ownership in the process and outcomes; 2. Demonstrate the City's commitment to moving forward; and 3. Inform, consult, and involve multiple invested stakeholders throughout each phase.

The following are recommended strategies to maintain phased engagement throughout the long-term planning process:

- Engage directly with impacted stakeholders *(as needed):* stakeholder meetings, open houses, community events;

- Build/utilize partnerships with stakeholders and invested groups and individuals;

- Attend community/organization meetings: i.e. wards, business associations, block units, advocacy organizations, etc.;

- Create a standing Northside-Southside Citizen's Advisory Committee;

- Share online: Social Media, City website;

- Host a Station Area Networking Symposium: invite developers, leaders, and experts to learn more about opportunities and the plan for development; and

- Provide progress reports: i.e. in the St. Louis Development Corporation Annual Report, Website, mailed and E-newsletter.

APPENDIX A – Kingshighway and Natural Bridge Stakeholder Interviews

Barbara Washington, Mathews-Dickey Boys and Girls Club
May 20, 2013

Mathews-Dickey Boys and Girls Club (MD) is a nonprofit organization that annually provides educational, athletic, and cultural enrichment programs to more than 40,000 young men and women, ages 5-18, throughout the St. Louis metropolitan region. Some come from as far away as Illinois. The club is located at 4245 N. Kingshighway Boulevard. Barbara Washington, Vice President of Public Relations and Special Events, was interviewed for the TOD project.

1. **Benefits:**
    a. *Increase visitors to area.* MD could increase its enrollment numbers if there were a faster more efficient transit option. Transportation is a barrier for young people coming to MD. MD had a club in south St. Louis at one time, but closed it and there was no way to get kids there to the Kingshighway location. The Northside-Southside line would have helped. Lastly, MD has several student volunteers from Washington University and St. Louis University who do not have cars and this would be a real benefit. Also would help MD members who participate in a six-week program called, "Learning to Live on a College Campus," get them to Washington University where the program takes place.
    b. *Improve look of neighborhood.*
    c. *Attract more businesses.*
    d. *Encourage property maintenance.* People would cut their grass, pick up trash, etc.

2. **Challenges:**
    a. *Safety*. A station stop and more development will bring more people. Need to make sure that there will be ample protection to prevent robberies and violence.

3. **Types of businesses:**
    a. Sandwich shop. Need healthier food choices.
    b. *Convenience store*. Place to pick up a few quick items on the way home such as milk and eggs.

c. *Barbers and hairdressers.* While parents waiting at club for their children, they can take care of other tasks like getting their hair done.
d. *Supermarket*. Need supermarket that is clean.

There should not be any liquor stores!

4. Types of Housing:

a. *Large brick condos*. Unlike the new ones on Penrose "that look like barns." Include brick homes so more in line with current architecture. Two and three bedroom condos to accommodate more family members.
b. *Senior housing*. There is one complex south of the intersection but need more because there are lots of seniors in the area.
c. *Apartment complex.* Good example is the one at Lucas and Hunt, near Norwood Hills Country Club. It's neat, quiet, low-income, child friendly, and blends into the community. The complex that was there before was "atrocious."

5. Evaluation Criteria:

a. *Minimal displacement of residents*. If process done correctly, displacements will be minimized where good residents will stay, and new ones will be attracted to the area. However, for people who will have to be moved, they should be relocated to comparable neighborhoods.
b. *Elimination of vacant land*. Station and new developments should be placed in area that uses the most vacant land.

6. Making Station and MetroLink Part of Commute:

a. *Safe for riders*. Police presence around station and businesses.
b. *Accessible routes.* Need more routes to create a system so people throughout St. Louis can use it. Our coaches spend a lot of time picking students up because they do not have transportation.
c. *On-time service.* Trains should be more reliable and get people to the neighborhood faster.

7. Vision:

a. *Visually appealing neighborhood*. Property surrounding the station has manicured lawns and painted buildings. Vacant and dilapidated buildings are gone because they are unsafe and convey a sense of hopelessness to children.
b. *More businesses*. Business owners want to move to area because it's nice and there is a great clientele base.
c. *More schools.* We have City Academy, but need more schools.
d. *Greater police presence*. Police are walking the community and people feel safer.

Sharon Tyus, Alderwoman 1st Ward, St. Louis City
May 17, 2013

Alderwoman Sharon Tyus represents the 1st Ward in the City of St. Louis. She was engaged during the Northside-Southside Study between 2006 and 2008, to select the alignment of the proposed line. Alderman Tyus has recently returned to office and is a proponent of big box retail and entertainment developments locating in the district. She was an advocate for Walgreens and Schnucks to develop in the area and has identified parcels of land just East of the interchange, which can be used to develop the MetroLink station.

1. **Benefits:**
    a. *Transit is easy and safe.* The residential community can put their cars away and use transit instead. Currently I can step out my front door get on a bus and ride to the hospital to get MetroLink. Others don't have that easy access. It's a safe mode of transportation.
    b. *Natural Corridor for TOD.* Natural Bridge is a corridor and becomes a real asset for all of the communities along that area. Natural Bridge is a natural commerce district. There have always been jobs along the corridor – with a new MetroLink there will be additional business development.
    c. *Access to jobs*.
    d. *Brings the communities together*. Often, people have felt left out. We have to plan where it is successful, but others feel left out. People will get the feeling that they are an actual part of St. Louis and not an after thought.
    e. *Attracts more development*. I went to San Diego to see the above ground train. There was lots of development. People will come to the neighborhood and then it will attract more development.
    f. *Stable Community.* We have a stable community with people who have lived there for a long time. There is a middle class community associated with this area that has family still living there.
    g. *Investment attracts more investment*. The more development we have in the area will encourage more. We have to look at a holistic look from the region, including the media. We need something that attracts people to neighborhoods. When people see the Federal Government, State and

City investing in the community – others will see that as an area to buy and invest in.

h. *Neighborhood is FULL OF HISTORY.* And the people want to retain that history. A strength is the people who refuse to move and continue to care for the community.

2. Challenges:

a. *Gentrification.* People in the community can be scared of development because people think they will be displaced. People are afraid of the process.

b. *Assembling land mass.* Because there is a large residential area directly behind the commercial that is along the street. Gentrification is a huge issue. In Chicago, the when the Bulls stadium was built they worked with the current residents by building them the exact same house two blocks away.

c. *Residential housing facing the train line.* If we will run the train down the middle of the street it could alarm the residential houses that face Natural Bridge and think it will be too noisy – they tend not to believe what will happen. The team will have to meet with the residents and make them comfortable with what is occurring.

d. *Limited vision for North St. Louis.* People have an idea of what African Americans will patronize, so the planners can be prejudice and start directing the developments to what they think can happen. People begin to limit the vision of North St. Louis. When they see one thing works – that's what starts to happen all the time. A good plan has a variety of things – not a generic format. A limited view of what the area can be.

e. *Attracting a variety of developments like entertainment.* There is nothing to do in North St. Louis. We used to be the barbecue capital, but now there is no destination or well-known draw like a Sweetie Pies restaurant. I would love to see some type of entertainment area where people can sit out and have a cup of coffee – maybe down union.

f. *We are not monolithic!* Our youth have backyards, so they do not really have a lack of something to do - the issue is parenting. The adults need things to do, we don't need another community center. We need more entertainment and retail options that cater to a diversity of tastes. African Americans have buying power and they want quality things, not just cheap discount shopping. There is seepage of the dollars going into other communities where we can find what we really want. I often see my neighbors shopping at Straubs grocery store in the Central West End because we get the experience we want – clean, friendly, good products.

g. *We are doing our own gentrification.* There are 2nd and 3rd generations of families buying their parents homes.

3. **Types of Businesses:**
    a. *We are not monolithic.* Starbucks – African Americans like nice things – name brand things.
    b. Entertainment.
    c. Hardware store.
    a. *Bank*. St. Louis Community Credit Union is buying the Gateway Bank
    d. *Big box retail.* Old navy, Burlington Coat Factory – like what's at the other end of Kingshighway.
    e. *Mixed-use retail along Martin Luther King Drive.* MLK has a more small and intimate feel where people could live above their businesses. Mixed use offers a more hands on approach to starting a new business. The city could offer a back up business incubator center.

4. **Types of Housing:**
    a. *Mixed Use along Natural Bridge.* 3 to 4 story developments with apartments, condos, or office condos.
    b. *We don't have very many places to build new housing.* We have more in-fill housing opportunities. The housing stock is very strong. By building up Natural Bridge at Kingshighway we helped to stabilize the housing stock and people staying in their homes. Most of all the housing is brick. There are many more opportunities to rehab rather than to build new.

5. **Evaluation Criteria:**
    a. *Street widths.* On some sections it may make sense to narrow the street like the Delmar Loop.
    b. Rehabbing homes.
    c. *In-fill for vacant lots.* There may be 50 housing unit spaces available in Penrose. Further down Natural Bridge there is more housing needed.
    d. *Reducing traffic noise from Kingshighway.* Currently residents experience a lot of noise from traffic including ambulances traveling along Kingshighway. What types of traffic noise reduction strategies can be put in place, like some berms and trees at the corners.
    e. *Medical facility North of Natural Bridge*. We want to have a medical facility north of Natural Bridge to reduce the amount of emergency traffic going to Barnes Jewish Hospital.
    f. *Programing to introduce people to transit*. People who don't currently use transit may think poorly of it or be afraid to ride it. If transit is available and accessible and people are exposed, they will use transit. Maybe offer free rides so people see how it works. People are often afraid of the unknown. Getting people comfortable using the system – especially older people – will be key.

6. **Making Station and MetroLink Part of Commute:**
    a. *Safety.*

b. *Easy access.*

7. **Vision:**
    b. *"Tyus finally gets her Home Depot and Target/Walmart"*
    c. *"North St Louis at Kingshighway and Natural Bridge is a destination"*

Ginger Imster – Director of Development, City Academy
Nikki Doughty – Director of Placement and Alumni Relations, City Academy
Stephanie Dooley – Director of Admissions, City Academy
May 20, 2013

City Academy is a nine-year-old "public school with a private mission" located two blocks north of the Kingshighway and Natural Bridge intersection at 4175 N. Kingshighway Boulevard. It serves approximately 160 students in K-6th grades with 25% living in the neighborhood and the rest from underperforming or unaccredited schools in north St. Louis city and county. City Academy already owns the property to its west off of Brown and Penrose for future expansion. Its goal is to serve 250 students in K-6th grade. It does not plan to add grades. Three employees at City Academy participated in the interview:

1. **Benefits**:
    a. *Attract more pedestrians.* This is already a high pedestrian area. Great for businesses.
    b. *Provide more convenient stores and services.* Delmar and DeBaliviere intersection is type of development we would like to see here. If we could create some version of that, people would come. This intersection works because:
        i. More pedestrian friendly
        ii. Safer
        iii. Attractive
        iv. Has day care center
        v. Has People's Health Clinic and St. Louis ConnectCare's Urgent Care Center
        vi. Neighborhood park
        vii. Has government building, the Social Security building.
    c. *Provide faster more efficient transit service.* Light rail better than bus service so more people will use it and come to neighborhood to live and shop.

2. **Challenges:**
    a. *Increased traffic congestion*. City straightened Kingshighway in this area to make it safer and to improve light sequencing. However, it is a very busy intersection with short turn lanes and people are notorious for

running lights and driving improperly. The problem worsens at lunchtime. To address congestion, station should be underground like at the Forest Park and DeBaliviere station. It would also protect users during inclement weather.

b. *Increased foot traffic*. Residents might become concerned about their safety, particularly moms with small children and senior citizens because there is a senior living center down the street.
c. *Decreased customer base during construction*. Station would need to be built in a way that would not affect customers reaching existing businesses.
d. *Gentrification*. Current residents may fear displacement by more expensive housing and higher income residents. Will need to be communicated to them throughout planning process that they will not be displaced.

3. **Types of Businesses**:
    a. *Casual restaurants with quality food, excellent fast service*. Similar to a diner. Great example is The Kitchen Sink Restaurant at 280 DeBaliviere. It is a new small restaurant that serves great Cajun and Creole dishes.
    b. *Office supply store.* Need larger inventory then the nearby Walgreens.
    c. *Dunkin Donuts*. Has healthy food options, plus reasonable price point.
    d. *Medium-sized grocery store with affordable healthy food options.* Great to have a Walmart neighborhood market store where could pick up a few items on way home from work. Besides Schnucks at Natural Bridge and Union, not another grocery story around with affordable healthy options. There is a Pete's Sure and Save and Aldi, but not freshest produce.
    e. *Bread Company.* But may be too expensive for area.

Walgreens at the northeast corner of Kingshighway and Natural Bridge is an excellent example of how a business should operate. It is safe, clean, and employees show respect for the customers.

4. **Types of Housing:**
    a. *Mixed-Use housing.* Small retail businesses on first floor locally owned with apartments above. Good example is new project at Sarah and Finney – has housing, childcare, supermarket and office spaces.
    b. *Housing for larger families.* There are lots of families in the area that need at least three bedrooms.

5. **Evaluation Criteria:**
    a. *Limited right-of-way acquisition*
    b. *Minimal displacement of residents*
    c. *Community is enriched, not changed.* Planners need to be thoughtful how project is integrated into neighborhood. The goal should be how do you

make this area more attractive to the people you want to keep and unattractive to the people you want to keep out. Skinker-DeBaliviere has made an honest effort in this area.

6. **Making Station and MetroLink Part of Commute:**
    a. *Safe for riders*.
    b. *Accessible routes***.** Might be able to use train to get to work, but if it's not convenient for getting to meetings during the day, cannot ride it. We need a MetroLink system throughout St. Louis where riders can get on and off at a variety of places.
    c. *Consistent schedule*. No further reductions in service.
    d. *On-time service*. Trains need to be reliable and travel times need to be shorter than bus service. We have families who come from Page and Skinker on bus line and it takes them 45 minutes. This should not happen with light-rail.

7. **Vision:**
    a. *Area hotbed of innovation and urban revitalization.* "If you can do it here, you can do it anywhere!" Lots of vacant lad in area that could be an incubator for a new kind of north St. Louis. Plus, there are many tax incentives.
    b. *Case study for "courage, faith, vision, and integrity."* St. Louis County has over abundance of choice, but because of perceived lack of customer base in north St. Louis, you don't see that kind of commitment to choice. However, our area is an emerging market so leaders and planners need to figure out how to serve it.
    c. *Families now able to get everything they need within their neighborhood*. No longer going to four different stores to buy items.

Additional Comment:

- Interviewees said they would put the station stop either east of White Castle or if the Post Office at 3415 N. Kingshighway Boulevard closes, then that area would be great because there would be lots of available land.

Mark Vogel – Board Member, Citizens for Modern Transit
May 21, 2013

Citizens for Modern Transit (CMT) is a 20-year-old organization dedicated to leading efforts to integrate and expand public transportation – especially light rail - within the St. Louis region. CMT was a key partner in the 2006 Northside-Southside study and continues to educate the public and developers about opportunities that exist around transit stations.

1. **Benefits:**
    a. *Transit options for residents.* I think a station in this particular area (Kingshighway/Natural Bridge) would mostly benefit residents. My understanding of this neighborhood is that it has a high rate of "transit dependent" riders and low rate of car ownership. If this is true, any transportation enhancements will benefit residents—offering them better frequency, reliability, comfort and accessibility.
    b. *Access to jobs.* Residents who are more mobile have greater access to the region's jobs.
    c. *Desirable neighborhoods.* Although STL has not seen much transit oriented development since MetroLink was constructed, neighborhoods that have a Metro station are very desirable. I predict the North Side Metro would be a welcome investment for these neighborhoods and would make these areas more attractive for prospective residents (buyers and renters alike).

2. **Challenges:**
    a. *Currently businesses cater to drivers.* Regarding businesses, I do not really know if this area is a major employment concentration that would experience a lot of commuters arriving by train. It seems that the predominant type of business in the area is strip retail and fast food—uses that tend to cater to drivers. In the near term this might not change much…but over the long term I would expect a gradual shift toward more business diversity and density closer to the light rail station.
    b. *Current lack of desirable resident or business draws*. *Without* a transit station the area is unlikely to ever grow much denser or diversified than it currently is.
    c. *Gentrification (real and perceived) and NIMBY-ism.*
    d. *Increased values equal increased costs.* I would expect that property values would gradually increase with proximity to MetroLink. These properties (both residential and business) should be expected to have

higher occupancy and rent. Some may see increased values (costs) as a negative for existing businesses and residents but ultimately they are also the ones who will benefit.

e. *Perceptions of increased density challenges.* Some people may not welcome higher density and perceptions of increased traffic, more noise, less convenient parking, etc. but these factors are a result of a place getting more valuable, popular and desirable.

3. Types of Businesses:

a. Personal goods and services, preferably ones that complement each other and support daily neighborhood activities… including civic uses.

b. Services. day care center, senior services, convenience. store/market/grocer, pharmacy, laundry, barber/hair/nail salon, doctor's offices/clinic/dentist, post office.

c. *Small retail.* Shops, small restaurants, coffee house, book store/library, church/temple/mosque, bike store, health club. Variety would be desirable.

d. *No big box development.* Stay away from big box retail, strip shopping centers and their huge parking lots.

e. *No car dealers*. Too much real estate for cars and not enough density of people (worker/customers). I am tempted to say no mechanics/oil change or gas stations but my own experience is that I frequent a mechanic that is close to a Metro station.

4. Types of Housing:

a. *Radiating density and value from station.* The housing density should reflect the increasing value in proximity to the station. Rental or for sale doesn't matter...whatever the market dictates.

b. *Variety of unit sizes.* But there should be a variety of unit sizes/prices and some housing (not all) should be targeted for communities of people who are most dependent on or likely to ride transit (elderly, disabled, students, young adults).

5. Evaluation Criteria:

a. *Connectivity to the surrounding neighborhood.* TOD shouldn't be an island but should blend with adjacent streets/blocks.

b. *Variety of uses*. Residential, business, services.

c. *Variety of users.* Mixed incomes, mixed ages (including kids).

d. *Benefits to neighborhood.* This can be flexible, but there should be "something in it" for existing neighbors. For example, if TIF or TDD are used for financing the boundary should extend beyond the immediate TOD project to improve sidewalks, etc. in a bigger area.

e. *Civic mindedness.* Good public realm, streets, pedestrian facilities, maybe park/plaza/open space.

f. *Good accessibility.* ADA/universal design of course, but also good access to surrounding neighborhood, streets, sidewalks, etc.
g. *Multimodal.* Connections to other modes of transportation like bus, taxi, bikeways…and a little bit of parking.

6. Making Station and MetroLink Part of Commute:

a. *It's all about convenience*. Good bike facilities and a small park-ride lot are big benefits. But convenient retail/services at the station would also be strong incentive.
b. *Convenient childcare.* When my kids were younger I realized that one of the biggest challenges for working parents is not having a daycare close to the station.

7. Vision:

a. *Catalyst needed for major change.* I don't see this neighborhood changing dramatically for the better—on its own—in the next 10-20 years. It will take a significant catalyst to begin realizing major changes. Light rail could be that kind of a catalyst.
b. *Population growth equals economic health.* I recently saw an analysis of the City's population trends over the past decade: even as the City's population as a whole slightly declined, neighborhoods along MetroLink saw population increases. If those numbers are correct it suggests that Metro could be partly responsible for maintaining economic health of the central corridor.
c. *Investment in the future.* If we hadn't built MetroLink 20 years ago, how much worse would Downtown be today?
d. *Reinvestment, revitalization and growth.* The North Side Metro should be a stabilizing factor (at minimum) in its first 5-10 years. 10-20 years out it should be a catalyst for reinvestment, revitalization and growth.

Craig Schmid – Alderman 20th Ward, St. Louis City
May 20, 2013

Alderman Craig Schmid represents the 20th ward in the City of St. Louis. His ward partially covers the Cherokee and Jefferson station area to the south. Alderman Schmid was engaged in the 2006 – 2008 Northside-Southside Study to select an alignment. He has recently returned to office.

1. **Benefits:**
    a. *Cherokee is the "downtown for South City".* The retailers are supposed to provide an experience for consumers that they can not get online or in other places. Chippewa Broadway was a very commerce driven area (Can't buy it better anywhere).
    b. *Existing infrastructure.* Lutheran Hospital has an underground garage that is not being used because it needs to be repaired. Cherokee street over time will require parking (possibly a garage).

2. **Challenges:**
    a. *Low expectations from current building owners.* Owners of the buildings don't think people will come to that area and buy anything.
    b. *Limited available land for a new footprint.* The important thing is for the ease of the riders to come into the area. The stations should be kept small with some small retail, like a place to get a donut and coffee and news access (wifi), park your car or bike and get on the train.
    c. *Lack of resident focused retail diversity.* If Cherokee continues along its current route it will be short lived. Needs retail for daytime living for residents use – this will make the street more sustainable. Resident focused shops include some technology, furniture, hardware, women's clothing. Women's clothing has always been a commodity that could be leveraged in the area.
    d. *NIMBY.* Anytime you change anything people can be very adverse to change.
    e. *Easing public fears.* How is traffic going to move around the train if it's on the street? How will technology be used to keep noise levels down? How will the overhead lines impact the look of the community?
    f. *Maintaining a business friendly community*. How can we maintain the thing that currently attracts businesses to the area – inexpensive cost of doing business, availability of land, and strong customer base?

g. *Increasing density and stabilizing neighborhood.* How do we use, renovate, or change housing stock to increase long-term residents?

3. **Types of Businesses:**
    a. *Entertainment and retail*. Satellite library at Chippewa/Broadway – have internet access at that location near the Davita – Dialysis Center.
    b. *No big box businesses.* This area really fosters the independent small businesses that fit the vein of what's happening in the area.
    c. *Mid-size grocer.*
    d. *Artistic type retail.* Should be something like an artistic expression of the streetcar – like at the history museum.

4. **Types of Housing:**
    a. *Retain current housing stock.* Architecture is key to this community.
    b. *Convert current stock for more sustainable habitation.* Actually want to convert 2 families to single and 4 families to 2 – there is more stability with those types of units. With smaller units the stakeholders aren't as stable and the turn over rate is very high. Want people to set up roots and stay there longer.
    c. *Fill-in / renovated apartments and transitional housing*. There is a lot of vacant buildings in the area that can be filled in and renovated for apartment and transitional living, but the area isn't looking to add more of those types of units. There is currently about 90% rental and his goal is to get to 50/50 rental/ownership. People see it as an opportunity to make money and not stabilize the community.
    d. *Strong landlord housing management*. Management of the units is poor and needs improvement to help stabilize the community. Renters are the natural potential homeowners.

5. **Evaluation Criteria:**
    a. *Available land.* It's the right location but not enough room – where will you put the station. There will have to be lots of land acquisition.
    b. *Chippewa is a better place for a MetroLink station*. Because all of the busses come in to that area (Chippewa, Broadway, Jefferson all come into each other at that point to connect) instead of Cherokee or Keokuk.
    c. *How to reuse old buildings.* There are a number of vacant buildings and structures not being used.
    d. *Consider using area south of Cherokee.* Behind Gasconade is the old dog pound that is an area that could be used as instructional for the 1/3 Native American mound that is close to that area – repurpose for a park and educational building/Interpretive center. Celebrate house St. Louis was once the Mound City.

e. *Multimodal.* Incorporate the bike trails that are connecting to that area and bring more tourism. Connect this station to the other busses coming into the area.
f. Variety of options. How to include cultural institutions, services and commerce as new developments along the street.
g. *Parking availability within the area.* How to provide parking even if it's for nearby commuters who don't want to walk.

6. Making Station and MetroLink Part of Commute:

a. *Build it.* If this were there I would be on it without pause.
b. Ensure street connectivity and walkability.
c. *No benches.* Benches attract homeless people that sleep there all night.
d. *Maintain the station area*. Metro doesn't take control of bus stops but they do control MetroLink stations for maintenance
e. *Safety.* Make residents feel safe and secure – add lighting, street scape, trees.
f. *Keep some brick sidewalks in the area.* Make sure they aren't broken up,
g. *Provide biker/walker accessible dining options.* Don't want drive thru places like Grand Starbucks but has to be fast.

7. Vision:

a. *We are in our next stage of renewal*. We will have already arrived and will be investing again for the next stage of renewal.

Nancy Cross – Board Member, Citizens for Modern Transit
May 20, 2013

Citizens for Modern Transit (CMT) is a 20-year-old organization dedicated to leading efforts to integrate and expand public transportation – especially light rail - within the St. Louis region. CMT was a key partner in the 2006 Northside-Southside study and continues to educate the public and developers about opportunities that exist around transit stations.

1. **Benefits:**
    - **a.** *Attract more development and neighborhood growth*. Stronger public transportation options will make both of those areas boom with more develop. New housing opportunities would help it to be a thriving area. A lot of our immigrant members and African-American members move into that area and want to see that kind of growth. They want to be part of a neighborhood that feels like a neighborhood. I have seen the area change in the last 10 years, for the better. Mass transit would be huge.
    - **b.** *Become a destination*. Cherokee would become a destination – the shops, restaurants, antique row, events (Cinco De Mayor) and it's very diverse. Could be very successful.
    - **c.** *Improved housing options.* At Natural Bridge/Kingshighway – housing for varied social economic/income levels, mixed housing.
    - d. *Increasing neighborhood amenities.* It would be nice if the people who live in those areas could get their "errands" run right near their homes, in their neighborhood, on the way home – groceries, etc.

2. **Challenges:**
    - a. *Educating potential developers.* Making sure that the developers understand the opportunities - will be a challenge. It will probably less of a challenge than three or four years ago. CMT has done a lot of workshops and people are starting to get engaged around TOD. Need developers to be engaged in a way that is beneficial, that they see it as a way to benefit the neighborhoods and grow their organizations. City has been open to helping developers and supporting development. Getting a small to medium developers with WMBE certification would be good.
    - b. *Attracting sustainable developments.* Finding development that fits well with the community and is sustainable – businesses that will stay. You

don't want a lot of turn over; I've seen too many storefronts becoming vacant every few years.

3. **Types of Businesses:**
    a. *Variety of service and retail businesses.* UPS (to serve the small business in the area), CVS or Walgreens, bank, dog/pet care services,
    b. *Dining.* Dine-in eateries.
    c. *Housing.* Mixed housing.
    d. *Education.* College or university extension services/satellite office.
    e. *Office/Professional.* Office space, business or services or organizations that would serve as anchors (like Regional Art Commission in the Loop, as opposed to Wal-Mart or Home Depot).
    f. *Grocery.* Even though there is a Save-A-Lot nearby, if they could get a Schnucks – something like a Culinaria – it would attract young professionals.

4. **Types of Housing:**
    a. *Mixed housing.* Apartments, maybe reasonably priced condos, walk-ups. Not big high-rises; not past 5 or 6 stories.

5. **Evaluation Criteria:**
    a. *Local business development.* Small and medium sized businesses that are from the St. Louis community, that could benefit and help the community.
    b. *Resident engagement.* Engaging the community, meeting with residents to find out what they want to see so that they are more likely to feel invested.
    c. *Local schools and programs.* Consider nearby schools and afterschool programming and where those services are located in relationship to the station.

6. **Making Station and MetroLink Part of Commute:**
    a. *Convenience for employees and employers.* Nancy can't take Metro to her office. She has considered moving the office – if MetroLink goes there with a station, and they offered office space, she could consider moving the office there.
    b. *Area becomes a destination.* When she goes into that area now, it's for a specific reason, but with new TOD around a station, she would go just to "check it out" - like CWE and the Loop – to dine, shop, etc.

7. **Vision:**

a. *Inclusive amenities.* This is a vibrant, diverse, community with something for everyone!
b. *Housing for all.*
c. *Things to do.* Community amenities and outdoor space for visitors.
d. *City/County Collaboration.* City and the County need to collaborate work together.

Jason Deem – Cherokee Station Business Association
May 17, 2013

The Cherokee Station Business Association includes more than 50 independently owned and operated businesses along seven blocks of Cherokee Street. The association works to spur development in the area and raise the prominence of Cherokee Street. It is very active in cultivating the artistic, residential, and commercial community through major events, advertising, and marketing. In addition to his role with the association, Jason Deem is owner of South Side Spaces, which offers a variety of residential, retail and creative office spaces in South St. Louis, including Nebula – Co-working, a community workspace.

1. **Benefits:**
   a. *Mixed neighborhood and people need transit.*
   b. *Connection to Downtown.* We are so close to downtown but still disconnected from downtown
   c. *Attracting entrepreneurs.* There are many ties that could happen for reaching businesses and advancing entrepreneurship in St. Louis

2. **Challenges:**
   a. *Limited real estate available*. Most of the properties have been purchased by independent buyers with interests in the community.
   b. *Low-income predatory chain business*. If we got more chain businesses that prey on low income populations, that would be a downside because it doesn't really benefit the neighborhood.
   c. *Jefferson Ave. divides Cherokee Street.* Jefferson is really a dividing line for Cherokee – it's busy, antique row and new Cherokee street area have philosophical differences – the mentality is don't cross Jefferson or you could get shot or it's just antiques.Would hate for a street level MetroLink to increase the dividing line. We want to make sure Cherokee street is not cut in two. Can we do something at the station to make sure it's still a unified street like a bridge, signage to make it feel like a destination

3. **Types of Businesses:**
   a. *Small independently owned and operated businesses.* Almost all of the new businesses along Cherokee are independently owned and doing

unique things. Handmade Jewelry, STL Style, firecracker press, etc. – especially on Cherokee.

b. *More localized retail*. Things that serve the community – clothing shoes, furniture, things that have an element of local design and adaptive reuse (reclaimed elements like wood or architecture); photography, restaurants diversity (currently Mexican and chain restaurants) like Pi Pizza and Baileys Chocolate Bar, more nightlife.
c. *More healthcare and education services.* It's a sensitive topic because it can be detrimental to a business district because they can sometimes be a black hole that don't provide interesting things to have an experience with along the walk on the street. Propose to put those on the second story of something but not on the ground level taking away from the visual and economic experiences spaces.

The last owners along Cherokee put in many social services and the retail establishments that prey on poor populations and don't add to the walkable experience. We are now doing some un-doing to that. The good side is the buildings were kept in tact.

4. Types of Housing:

a. *Biggest need is to increase density.* There is a push to take four family houses and convert to 1 or 2 units that are owner occupied. That made sense 10 years ago. Now there are a lot of young professionals without families that should be a focus and not just families that need large houses. It's really easy for us to rent $500 one bedroom.
b. *Historic tax credits* have been great. Keep current housing stock and historic architecture.
c. *Modern designed new developments.* For new development housing, make it really modern to contrast with the historic architecture. Helps to highlight the history. It's not a good idea to try to reproduce historic looking buildings. Most important is that it's unique and different.
d. *Mixed-use on Jefferson.* For Jefferson, it is ideal to do mixed use retail on ground floor with housing above. Jefferson has a lot of opportunity for that

5. Evaluation Criteria:

a. *Walkability is incredibly important.* The goal of TOD and business development for this area is in line – high density builds transit and businesses and people have to walk there
b. *Continued organic development and growth.* Cherokee has been brought back by small independent developers and it feels like a patchwork – there is no top-down/planned out development feel to it. How can we include the small developers with opportunities to be located along

Jefferson? This would help to maintain the established neighborhood identity.

c. *Prime streets.* Jefferson is already ready for it, there's not a whole lot that would need to be changed. It seems shovel ready.

6. Making Station and MetroLink Part of Commute:

a. *Short and consistent wait times.* If I have to wait long to get a train like 15 minutes it would be too long, 3 to 5 minute wait would be good.

b. *Accessibility.* I live and work in the area so I wouldn't necessarily need to use it often. I would definitely ride it out to the airport or downtown. This station would make that feasible

7. Vision:

a. *Unique destination.* We are moving on a path that lends itself to a unique destination that is a vibrant looking streetscape. Some of the things I would like to see at Jefferson and Cherokee is a really awesome opportunity for public art. The biggest things Cherokee are known for are multicultural, diversity, artsy. If I'm getting off MetroLink at Cherokee and Jefferson I want to see public art, outdoor musicians, arts district. Visually that's what I see – for businesses this could be a travel destination – almost like Beale Street or Haight Ashbury like a thriving arts district – like Gaslight Square was 50 years ago. Somewhere people come from being known.

b. *Community revival continued.* This street is becoming a national model for how to revive businesses. Vines Brothers run STL Style – talked about at the RustBelt Conference; Cosign – Next American City (Cincinnati); Ohio. Having mass transit come here will highlight that there is so much going on. New farmers market coming farmers market at Nebraska and Cherokee; shipping container café (ALL NOT PUBLIC)

c. *Transit adds to the neighborhoods revival.* A transit station is needed bad and having mass transit come is a critical component. The bus service gets heavy usage. When the bus service was cut everyone had issues.

Economic:
Development Strategies Report and Appendices

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 1

	NEW CONSTRUCTION	RENOVATIONS
Residential (units)		
Affordable Housing	0 units	0 units
Stand-Alone Apartments	0 units	876 units
Mixed Use Apartments	246 units	0 units
Retail	0 square feet	0 square feet
Restaurant	0 square feet	0 square feet
Office	0 square feet	0 square feet
Surface Parking (spaces)	0 spaces	0 spaces
Garage Parking (spaces)	0 spaces	0 spaces

Fiscal Impact and Feasibility Analysis

Summary of Assumptions and Inputs

Development	NEW CONSTRUCTION		RENOVATIONS	
Affordable Housing				
Monthly Rent/s.f.	$0.90	per square foot	$0.90	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	800	square feet	800	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$150	per square foot	$160	per square foot
Non-Profit Cost Multiplier	60%	of Private Dev Cost	60%	of Private Dev Cost
Total Development Cost	$240	per square foot	$260	per square foot
Stand-Alone Apartments				
Monthly Rent/s.f.	$1.10	per square foot	$1.10	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	800	square feet	950	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Mixed-Use Apartments				
Monthly Rent/s.f.	$1.15	per square foot	$1.15	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	1,000	square feet	1,000	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Storefront Retail				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$20.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$150	per square foot	$150	per square foot
Restaurant				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$20.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$200	per square foot	$200	per square foot
Office/Institutional				
Annual Lease/s.f.	$15.00	per square foot (NNN)	$18.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,000		17,000	
2013 Development Cost	$160	per square foot	$160	per square foot

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 1

	NEW CONSTRUCTION		RENOVATIONS	
Surface Parking				
Annual Lease/space	$200	per space	$200	per space
Monthly Parking	$100	per space	$100	per space
Spaces	500		500	
2013 Development Cost	$10,000	per space	$10,000	per space
Parking Garage				
Annual Lease/space	$1,000	per space	$1,000	per space
Monthly Parking	$117	per space	$117	per space
Spaces	500		500	
2013 Development Cost	$20,000	per space	$20,000	per space

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 1

	NEW CONSTRUCTION		RENOVATIONS	
Property and Acquisition				
Property Acquisition North (Gross)	$400,000	per acre	$300,000	per acre
Property Acquisition South (Gross)	$0	per acre	$0	per acre
Remediation	$0	per acre	$0	per acre
Roads	$0	per acre	$0	per acre
Site Development and Utilities	$0	per acre	$0	per acre
Demolition	$0	per acre	$0	per acre
Soft Costs and Contingency @ 20%	$80,000	per acre	$60,000	per acre
ROW and Open Space Multiplier	20%	of net buildable area	20%	of net buildable area
Financial				
Inflation Rate	2.50%		2.50%	
Annual Rent/Sales Increases	2.50%		2.50%	
Cap Rates	Going In	Terminal	Going In	Terminal
Apartment	6.20%	6.80%	6.20%	6.80%
Office	7.50%	8.30%	7.50%	8.30%
Retail	7.80%	8.30%	7.80%	8.30%
Surface Parking	5.00%	5.00%	5.00%	5.00%
Garage Parking	5.00%	5.00%	5.00%	5.00%
Warehouse	10.00%	10.00%	10.00%	10.00%
Interest Rate	5.50%		5.50%	
Interest Rate (Public Garage)	5.00%		5.00%	
Public Finance Discount Rate	6.00%		6.00%	
Private Finance Discount Rate	15.00%		15.00%	
Commission (Going Out)		4%		4%
Term	30	years	30	years
Residential Amortization	27.5	years	27.5	years
Commercial Amortization	39	years	39	years
Loan-to-Value Ratio	80%		80%	
Debt Coverage Ratio	1.25		1.25	
Capital Gains Tax	15%		15%	
Public Finance				
CID	1.00%	of assessed value	1.00%	of assessed value
TDD	1.00%	of assessed value	1.00%	of assessed value
Tax Credits				
Federal Historic Tax Credit				
Percent of Eligible Costs	20%		20%	
Eligible Costs as % of Total	85%		85%	
% Equity Value of Credits	80%		80%	
State Historic Tax Credit				
Percent of Eligible Costs	25%		25%	
Eligible Costs as % of Total	85%		85%	
% Equity Value of Credits	75%		75%	
Federal LIHTC: 9%				
10 Year Allocation	90%		90%	
Eligible Costs as % of Total Building Cost	95%		95%	
Basis Boost	130%		130%	
% Equity Value of Credits	80%		80%	
State LIHTC: 9%				
10 Year Allocation	90%		90%	
Basis Boost	130%		130%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	40%		40%	
Federal LIHTC: 4%				

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 1

	NEW CONSTRUCTION		RENOVATIONS	
10 Year Allocation	40%		40%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	80%		80%	
State LIHTC: 4%				
10 Year Allocation	40%		40%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	40%		40%	
New Market Tax Credit				
7 Year Allocation	39%		39%	
Eligible Costs as % of Total Building Cost	90%		90%	
% Equity Value of Credits	75%		75%	
Government Revenue and Valuation Inputs				
Apartment				
Cap Rate	11%		11%	
Residential				
Appraised Value	90%	of actual value	90%	of actual value
Assessed Value	70%	of appraised value	70%	of appraised value
Commercial				
Appraised Value	90%	of actual value	90%	of actual value
Assessed Value	70%	of appraised value	70%	of appraised value
Valuation Approach				
Apartment	Income		Income	
For-sale housing	Sales		Sales	
Retail	Income		Income	
Office	Income		Income	
Assumed TIF-eligible Real Property Tax rate	$ 7.4674		$ 7.4674	
Assumed TIF-eligible Sales Tax rate	1.6438%		1.6438%	
Operational				
Apartment, Condo, Townhome				
Stabilized Occupancy	95%		95%	
Taxes	10%		10%	
Operating Expenses (non-tax)	30%	Effective Income	30%	Effective Income
Replacement Reserve	$250	per unit	$250	per unit
Retail				
Stabilized Occupancy	95%		95%	
Annual Operating Expenses	$2.50	per square foot	$2.50	per square foot
Taxes	$1.00	per square foot	$0.00	per square foot
Tenant Improvements	$3	per 5-year lease	$15	per 5-year lease
Leasing Commissions	1%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year
Restaurant				
Stabilized Occupancy	95%		95%	
Annual Operating Expenses	$2.50	per square foot	$2.50	per square foot
Taxes	$0.00	per square foot	$0.00	per square foot
Tenant Improvements	$15	per 5-year lease	$15	per 5-year lease
Leasing Commissions	6%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year
Office				
Stabilized Occupancy	95%		95%	
Class A Taxes (inc. in gross rent)	$0.00	per square foot	$0.00	per square foot
Class A Annual Operating Expenses (non-tax)	$2.50	per square foot	$2.50	per square foot

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 1

	NEW CONSTRUCTION		RENOVATIONS	
Class B Taxes Included	$0.00	per square foot	$0.00	per square foot
Class B Annual Operating Expenses (non-tax)	$2.50	per square foot	$2.50	per square foot
Tenant Improvements	$20	per 5-year lease	$20	per 5-year lease
Leasing Commissions	6%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year
Garage				
Stabilized Occupancy	75%		75%	
Private Owned Tax Rate	$280.00	per space	$280.00	per space
Public Owned Tax Rate	$0.00	operating income	$0.00	operating income
Operating Expenses	10.0%	or operating inc	10.0%	or operating inc
Management Fee	4.0%		4.0%	

DEVELOPMENT STRATEGIES, 2013

BASIC DEVELOPMENT PROGRAM - KINGSHIGHWAY ALTERNATE 1

	NEW CONSTRUCTION		RENOVATIONS	
Residential (units)				
Affordable Housing	396	units	0	units
Stand-Alone Apartments	355	units	332	units
Mixed Use Apartments	830	units	0	units
Retail	232000	square feet	0	square feet
Restaurant	78000	square feet	0	square feet
Office	1000000	square feet	0	square feet

Fiscal Impact and Feasibility Analysis

Summary of Assumptions and Inputs

Development	NEW CONSTRUCTION		RENOVATIONS	
Affordable Housing				
Monthly Rent/s.f.	$0.90	per square foot	$0.90	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	800	square feet	800	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$150	per square foot	$160	per square foot
Non-Profit Cost Multiplier	60%	of Private Dev Cost	60%	of Private Dev Cost
Total Development Cost	$240	per square foot	$260	per square foot
Stand-Alone Apartments				
Monthly Rent/s.f.	$1.10	per square foot	$1.10	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	800	square feet	950	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Mixed-Use Apartments				
Monthly Rent/s.f.	$1.15	per square foot	$1.15	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	1,000	square feet	1,000	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Storefront Retail				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$20.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$150	per square foot	$150	per square foot
Restaurant				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$20.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$200	per square foot	$200	per square foot
Office/Institutional				
Annual Lease/s.f.	$15.00	per square foot (NNN)	$18.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,000		17,000	
2013 Development Cost	$160	per square foot	$160	per square foot

BASIC DEVELOPMENT PROGRAM - KINGSHIGHWAY ALTERNATE 1

	NEW CONSTRUCTION		RENOVATIONS	
Property and Acquisition				
Property Acquisition North (Gross)	$300,000	per acre	$300,000	per acre
Property Acquisition South (Gross)	$0	per acre	$0	per acre
Remediation	$0	per acre	$0	per acre
Roads	$0	per acre	$0	per acre
Site Development and Utilities	$0	per acre	$0	per acre
Demolition	$0	per acre	$0	per acre
Soft Costs and Contingency @ 20%	$60,000	per acre	$60,000	per acre
ROW and Open Space Multiplier	20%	of net buildable area	20%	of net buildable area
Financial				
Inflation Rate	2.50%		2.50%	
Annual Rent/Sales Increases	2.50%		2.50%	
Cap Rates	Going In	Terminal	Going In	Terminal
Apartment	6.20%	6.80%	6.20%	6.80%
Office	7.50%	8.30%	7.50%	8.30%
Retail	7.80%	8.30%	7.80%	8.30%
Interest Rate	5.50%		5.50%	
Interest Rate (Public Garage)	5.00%		5.00%	
Public Finance Discount Rate	6.00%		6.00%	
Private Finance Discount Rate	15.00%		15.00%	
Commission (Going Out)		4%		4%
Term	30	years	30	years
Residential Amortization	27.5	years	27.5	years
Commercial Amortization	39	years	39	years
Loan-to-Value Ratio	80%		80%	
Debt Coverage Ratio	1.25		1.25	
Capital Gains Tax	15%		15%	
Public Finance				
CID	1.00%	of assessed value	1.00%	of assessed value
TDD	1.00%	of assessed value	1.00%	of assessed value
Tax Credits				
Federal Historic Tax Credit				
Percent of Eligible Costs	20%		20%	
Eligible Costs as % of Total	85%		85%	
% Equity Value of Credits	80%		80%	
State Historic Tax Credit				
Percent of Eligible Costs	25%		25%	
Eligible Costs as % of Total	85%		85%	
% Equity Value of Credits	75%		75%	
Federal LIHTC: 9%				
10 Year Allocation	90%		90%	
Eligible Costs as % of Total Building Cost	95%		95%	
Basis Boost	130%		130%	
% Equity Value of Credits	80%		80%	
State LIHTC: 9%				
10 Year Allocation	90%		90%	
Basis Boost	130%		130%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	40%		40%	
Federal LIHTC: 4%				
10 Year Allocation	40%		40%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	80%		80%	

BASIC DEVELOPMENT PROGRAM - KINGSHIGHWAY ALTERNATE 1

	NEW CONSTRUCTION		RENOVATIONS	
State LIHTC: 4%				
10 Year Allocation	40%		40%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	40%		40%	
New Market Tax Credit				
7 Year Allocation	39%		39%	
Eligible Costs as % of Total Building Cost	90%		90%	
% Equity Value of Credits	75%		75%	
Government Revenue and Valuation Inputs				
Apartment				
Cap Rate	11%		11%	
Residential				
Appraised Value	90%	of actual value	90%	of actual value
Assessed Value	70%	of appraised value	70%	of appraised value
Commercial				
Appraised Value	90%	of actual value	90%	of actual value
Assessed Value	70%	of appraised value	70%	of appraised value
Valuation Approach				
Apartment	Income		Income	
For-sale housing	Sales		Sales	
Retail	Income		Income	
Office	Income		Income	
Assumed TIF-eligible Real Property Tax rate	$ 7.4674		$ 7.4674	
Assumed TIF-eligible Sales Tax rate	1.6438%		1.6438%	
Operational				
Apartment, Condo, Townhome				
Stabilized Occupancy	95%		95%	
Taxes	10%		10%	
Operating Expenses (non-tax)	30%	Effective Income	30%	Effective Income
Replacement Reserve	$250	per unit	$250	per unit
Retail				
Stabilized Occupancy	95%		95%	
Annual Operating Expenses	$2.50	per square foot	$2.50	per square foot
Taxes	$1.00	per square foot	$0.00	per square foot
Tenant Improvements	$3	per 5-year lease	$15	per 5-year lease
Leasing Commissions	1%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year
Restaurant				
Stabilized Occupancy	95%		95%	
Annual Operating Expenses	$2.50	per square foot	$2.50	per square foot
Taxes	$0.00	per square foot	$0.00	per square foot
Tenant Improvements	$15	per 5-year lease	$15	per 5-year lease
Leasing Commissions	6%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year
Office				
Stabilized Occupancy	95%		95%	
Class A Taxes (inc. in gross rent)	$0.00	per square foot	$0.00	per square foot
Class A Annual Operating Expenses (non-tax)	$2.50	per square foot	$2.50	per square foot
Class B Taxes Included	$0.00	per square foot	$0.00	per square foot
Class B Annual Operating Expenses (non-tax)	$2.50	per square foot	$2.50	per square foot
Tenant Improvements	$20	per 5-year lease	$20	per 5-year lease

BASIC DEVELOPMENT PROGRAM - KINGSHIGHWAY ALTERNATE 1

	NEW CONSTRUCTION	RENOVATIONS
Leasing Commissions	6% per 5-year lease	6% per 5-year lease
Reserve	1.5% per year	1.5% per year

DEVELOPMENT STRATEGIES, 2013

LAND RESIDUAL VALUES - CHEROKEE ALTERNATE 1

NEW CONSTRUCTION

	Stand-Alone Apartments	Mixed Use Apartments	Retail	Office
STABILIZED NOI	$0	$1,935,036	($90,000)	($37,500)
CAP RATE	6.80%	6.80%	7.80%	7.50%
ESTIMATED PROPERTY VALUE	**$0**	**$28,456,412**	**($1,153,846)**	**($500,000)**
LRV @ 15%	$ -	$ 4,268,462	$ (173,077)	$ (75,000)
LRV @ 20%	$ -	$ 5,691,282	$ (230,769)	$ (100,000)

LRV @ 15%	$ 4,020,385
LRV @ 20%	$ 5,360,513

RENOVATIONS

	Residential (units)	Stand-Alone Apartments	Mixed Use Apartments	Retail	Office
STABILIZED NOI		**$8,253,760**			
CAP RATE		6.80%			
ESTIMATED PROPERTY VALUE		**$121,378,818**			
LRV @ 15%		$ 18,206,823	$ -	$ -	$ -
LRV @ 20%		$ 24,275,764	$ -	$ -	$ -

LRV @ 15%	$ 18,206,823
LRV @ 20%	$ 24,275,764
TOTAL ACREAGE NEEDED	19.9
subsidy available	$24,447,653
TOTAL COST	$176,777,000
TOTAL VALUE	$159,927,720

LAND RESIDUAL VALUES - KINGSHIGHWAY ALTERNATE 1

NEW CONSTRUCTION

		Affordable Housing	Stand-Alone Apartments	Mixed Use Apartments	Retail	Restaurant	Office
STABILIZED NOI			$2,136,816	$6,528,780	$2,775,200	$963,300	$14,212,500
CAP RATE			6.80%	6.80%	7.80%	7.80%	7.50%
ESTIMATED PROPERTY VALUE			**$31,423,765**	**$96,011,471**	**$35,579,487**	**$12,350,000**	**$189,500,000**
LRV @ 15%		$ -	$ 4,713,565	$ 14,401,721	$ 5,336,923	$ 1,852,500	$ 28,425,000
LRV @ 20%		$ -	$ 6,284,753	$ 19,202,294	$ 7,115,897	$ 2,470,000	$ 37,900,000
LRV @ 15%	$ 54,729,708						
LRV @ 20%	$ 72,972,944						

RENOVATIONS

	Residential (units)	Affordable Housing	Stand-Alone Apartments	Mixed Use Apartments	Retail	Restaurant	Office
STABILIZED NOI							
CAP RATE							
ESTIMATED PROPERTY VALUE							
LRV @ 15%		$ -	$ -	$ -	$ -	$ -	$ -
LRV @ 20%		$ -	$ -	$ -	$ -	$ -	$ -
LRV @ 15%	$ -						
LRV @ 20%	$ -						
TOTAL ACREAGE NEEDED	47.4						
subsidy available	$138,384,131						
TOTAL COST	$556,721,245						
TOTAL VALUE	$446,773,722						

CONSOLIDATED RUNS -
CHEROKEE ALTERNATE 1

YEAR	0	1	2	3	4	5
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -
RENOVATIONS						
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ -	$ -	$ -	$ -	$ -	$ -
ATIRR BEFORE SUBSIDY	13.49%					
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ -	$ -	$ -	$ -	$ -	$ -
ATIRR BEFORE SUBSIDY	14.43%					

CONSOLIDATED RUNS -
CHEROKEE ALTERNATE 1

YEAR	6	7	8	9	10	11
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -
Mixed Use Apartments	$ -	$ (7,490,694)	$ (440,914)	$ (412,864)	$ (384,112)	$ (354,641)
RENOVATIONS						
Stand-Alone Apartments	$ -	$ (6,538,642)	$ (4,064,696)	$ (4,000,972)	$ (3,935,655)	$ (3,868,706)
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ -	$ (14,029,336)	$ (4,505,610)	$ (4,413,836)	$ (4,319,767)	$ (4,223,347)
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ -	$ (3,348,390)	$ (440,914)	$ (412,864)	$ (384,112)	$ (354,641)
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ -	$ (6,538,642)	$ (4,064,696)	$ (4,000,972)	$ (3,935,655)	$ (3,868,706)
GRAND TOTAL	$ -	$ (9,887,032)	$ (4,505,610)	$ (4,413,836)	$ (4,319,767)	$ (4,223,347)
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS -
CHEROKEE ALTERNATE 1

YEAR	12	13	14	15	16	17
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -
Mixed Use Apartments	$ (324,434)	$ 1,007,970	$ 1,073,030	$ 1,139,716	$ 1,208,070	$ 1,278,133
RENOVATIONS						
Stand-Alone Apartments	$ (3,800,082)	$ (920,844)	$ (776,649)	$ (628,850)	$ (477,355)	$ (322,073)
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ (4,124,516)	$ 87,125	$ 296,380	$ 510,867	$ 730,716	$ 956,061
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ (324,434)	$ 1,007,970	$ 1,073,030	$ 1,139,716	$ 1,208,070	$ 1,278,133
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ (3,800,082)	$ (920,844)	$ (776,649)	$ (628,850)	$ (477,355)	$ (322,073)
GRAND TOTAL	$ (4,124,516)	$ 87,125	$ 296,380	$ 510,867	$ 730,716	$ 956,061
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 1

YEAR	18	19	20	21	22	23
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -
Mixed Use Apartments	$ 1,349,947	$ 1,423,557	$ 1,499,007	$ 1,576,343	$ 1,655,613	$ 1,736,864
RENOVATIONS						
Stand-Alone Apartments	$ 2,769,929	$ 3,008,119	$ 3,252,263	$ 3,502,510	$ 3,759,014	$ 4,021,930
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ 4,119,877	$ 4,431,676	$ 4,751,269	$ 5,078,853	$ 5,414,627	$ 5,758,794
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,349,947	$ 1,423,557	$ 1,499,007	$ 1,576,343	$ 1,655,613	$ 1,736,864
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 2,769,929	$ 3,008,119	$ 3,252,263	$ 3,502,510	$ 3,759,014	$ 4,021,930
GRAND TOTAL	$ 4,119,877	$ 4,431,676	$ 4,751,269	$ 5,078,853	$ 5,414,627	$ 5,758,794
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 1

YEAR	24	25	26	27	28	29
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -
Mixed Use Apartments	$ 1,820,146	$ 1,905,511	$ 1,993,010	$ 2,082,696	$ 2,174,624	$ 2,268,851
RENOVATIONS						
Stand-Alone Apartments	$ 4,291,420	$ 4,567,646	$ 4,850,778	$ 5,140,989	$ 5,438,455	$ 5,743,357
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ 6,111,566	$ 6,473,157	$ 6,843,788	$ 7,223,685	$ 7,613,079	$ 8,012,208
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,820,146	$ 1,905,511	$ 1,993,010	$ 2,082,696	$ 2,174,624	$ 2,268,851
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 4,291,420	$ 4,567,646	$ 4,850,778	$ 5,140,989	$ 5,438,455	$ 5,743,357
GRAND TOTAL	$ 6,111,566	$ 6,473,157	$ 6,843,788	$ 7,223,685	$ 7,613,079	$ 8,012,208
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 1

YEAR		30
AFTER TAX CASH FLOW BEFORE SUBSIDY		
NEW CONSTRUCTION		
Residential (units)		
Stand-Alone Apartments		
Mixed Use Apartments	$	59,767,918
RENOVATIONS		
Stand-Alone Apartments	$	295,023,535
Mixed Use Apartments		
GRAND TOTAL	$	354,791,453
ATIRR BEFORE SUBSIDY		
AFTER TAX CASH FLOW AFTER SUBSIDY		
NEW CONSTRUCTION		
Residential (units)		
Mixed Use Apartments	$	59,767,918
RENOVATIONS		
Residential (units)		
Stand-Alone Apartments	$	295,023,535
GRAND TOTAL	$	354,791,453
ATIRR BEFORE SUBSIDY		

CONSOLIDATED RUNS - KINGSHIGHWAY ALTERNATE 1

	0	1	2	3	4	5	6	7
AFTER TAX CASH FLOW BEFORE SUBSIDY								
NEW CONSTRUCTION								
Residential (units)								
Affordable Housing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,692,789)
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (5,172,110)
Retail	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Restaurant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RENOVATIONS								
Residential (units)								
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,478,115)
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (9,343,015)
ATIRR BEFORE SUBSIDY	7.23%							

AFTER TAX CASH FLOW AFTER SUBSIDY								
NEW CONSTRUCTION								
Residential (units)								
Affordable Housing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,692,789)
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (5,172,110)
Retail	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Restaurant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
RENOVATIONS								
Residential (units)								
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,478,115)
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (9,343,015)
ATIRR BEFORE SUBSIDY	11.03%							

8	9	10	11	12	13	14	15	16	17
$ -	$ (1,544,968)	$ (1,159,941)	$ (1,149,691)	$ (1,139,184)	$ (1,128,414)	$ (1,117,375)	$ (667,153)	$ (643,958)	$ (620,182)
$ (1,002,295)	$ (984,408)	$ (966,074)	$ (947,281)	$ (928,018)	$ (123,758)	$ (83,282)	$ (41,795)	$ 730	$ 44,318
$ (2,442,050)	$ (2,371,923)	$ (2,300,044)	$ 719,377	$ 870,414	$ 1,025,227	$ 2,402,148	$ 2,595,973	$ 2,794,644	$ 4,312,400
$ -	$ (1,939,358)	$ (2,312,711)	$ (2,318,920)	$ (2,325,284)	$ (2,331,807)	$ (2,338,493)	$ (2,345,347)	$ (2,971,893)	$ (2,989,893)
$ -	$ (673,171)	$ (585,566)	$ (582,751)	$ (579,866)	$ (576,908)	$ (573,877)	$ (570,769)	$ (303,618)	$ (292,191)
$ -	$ (48,229,218)	$ (10,280,116)	$ (10,278,576)	$ (10,276,997)	$ (10,275,379)	$ (10,273,721)	$ (10,272,021)	$ (10,270,278)	$ (10,268,492)
$ (977,255)	$ (938,596)	$ (898,970)	$ (858,354)	$ (816,722)	$ 630,399	$ 710,187	$ 791,970	$ 875,797	$ 961,720
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (4,421,600)	$ (56,681,641)	$ (18,503,422)	$ (15,416,196)	$ (15,195,657)	$ (12,780,641)	$ (11,274,414)	$ (10,509,142)	$ (10,518,576)	$ (8,852,322)

$ -	$ (1,544,968)	$ (1,159,941)	$ (1,149,691)	$ (1,139,184)	$ (1,128,414)	$ (1,117,375)	$ (667,153)	$ (643,958)	$ (620,182)
$ (1,002,295)	$ (984,408)	$ (966,074)	$ (947,281)	$ (928,018)	$ (123,758)	$ (83,282)	$ (41,795)	$ 730	$ 44,318
$ (2,442,050)	$ (2,371,923)	$ (2,300,044)	$ 719,377	$ 870,414	$ 1,025,227	$ 2,402,148	$ 2,595,973	$ 2,794,644	$ 4,312,400
$ -	$ (1,939,358)	$ (2,312,711)	$ (2,318,920)	$ (2,325,284)	$ (2,331,807)	$ (2,338,493)	$ (2,345,347)	$ (2,971,893)	$ (2,989,893)
$ -	$ (673,171)	$ (585,566)	$ (582,751)	$ (579,866)	$ (576,908)	$ (573,877)	$ (570,769)	$ (303,618)	$ (292,191)
$ -	$ 25,627,074	$ (10,280,116)	$ (10,278,576)	$ (10,276,997)	$ (10,275,379)	$ (10,273,721)	$ (10,272,021)	$ (10,270,278)	$ (10,268,492)
$ (977,255)	$ (938,596)	$ (898,970)	$ (858,354)	$ (816,722)	$ 630,399	$ 710,187	$ 791,970	$ 875,797	$ 961,720
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (4,421,600)	$ 17,174,651	$ (18,503,422)	$ (15,416,196)	$ (15,195,657)	$ (12,780,641)	$ (11,274,414)	$ (10,509,142)	$ (10,518,576)	$ (8,852,322)

18	19	20	21	22	23	24	25	26	27
$ (595,813)	$ (570,834)	$ (45,362)	$ (5,997)	$ 34,353	$ 75,711	$ 118,103	$ 707,642	$ 766,432	$ 826,692
$ 979,888	$ 1,048,580	$ 1,118,989	$ 1,191,159	$ 1,265,133	$ 1,897,142	$ 1,989,109	$ 2,083,375	$ 2,179,998	$ 2,279,037
$ 4,554,700	$ 4,803,058	$ 5,057,625	$ 5,318,556	$ 5,586,010	$ 5,860,151	$ 6,141,145	$ 6,429,163	$ 6,724,383	$ 7,026,983
$ (3,008,344)	$ (3,027,257)	$ (3,046,642)	$ (3,066,511)	$ (3,775,389)	$ (3,808,790)	$ (3,843,026)	$ (3,878,118)	$ (3,914,087)	$ (3,950,955)
$ (280,479)	$ (268,475)	$ (256,170)	$ (243,557)	$ 85,471	$ 108,187	$ 131,471	$ 155,337	$ 179,800	$ 204,874
$ (10,266,662)	$ (10,264,785)	$ (10,262,862)	$ (10,260,891)	$ (10,258,870)	$ (10,256,799)	$ (10,254,676)	$ (10,252,500)	$ (10,250,269)	$ (10,247,983)
$ 1,049,791	$ 1,140,063	$ 1,232,593	$ 1,327,435	$ 1,424,649	$ 1,524,293	$ 1,626,428	$ 1,731,117	$ 1,838,423	$ 1,948,411
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (7,566,919)	$ (7,139,649)	$ (6,201,828)	$ (5,739,806)	$ (5,638,644)	$ (4,600,105)	$ (4,091,446)	$ (3,023,982)	$ (2,475,320)	$ (1,912,941)

$ (595,813)	$ (570,834)	$ (45,362)	$ (5,997)	$ 34,353	$ 75,711	$ 118,103	$ 707,642	$ 766,432	$ 826,692
$ 979,888	$ 1,048,580	$ 1,118,989	$ 1,191,159	$ 1,265,133	$ 1,897,142	$ 1,989,109	$ 2,083,375	$ 2,179,998	$ 2,279,037
$ 4,554,700	$ 4,803,058	$ 5,057,625	$ 5,318,556	$ 5,586,010	$ 5,860,151	$ 6,141,145	$ 6,429,163	$ 6,724,383	$ 7,026,983
$ (3,008,344)	$ (3,027,257)	$ (3,046,642)	$ (3,066,511)	$ (3,775,389)	$ (3,808,790)	$ (3,843,026)	$ (3,878,118)	$ (3,914,087)	$ (3,950,955)
$ (280,479)	$ (268,475)	$ (256,170)	$ (243,557)	$ 85,471	$ 108,187	$ 131,471	$ 155,337	$ 179,800	$ 204,874
$ (10,266,662)	$ (10,264,785)	$ (10,262,862)	$ (10,260,891)	$ (10,258,870)	$ (10,256,799)	$ (10,254,676)	$ (10,252,500)	$ (10,250,269)	$ (10,247,983)
$ 1,049,791	$ 1,140,063	$ 1,232,593	$ 1,327,435	$ 1,424,649	$ 1,524,293	$ 1,626,428	$ 1,731,117	$ 1,838,423	$ 1,948,411
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (7,566,919)	$ (7,139,649)	$ (6,201,828)	$ (5,739,806)	$ (5,638,644)	$ (4,600,105)	$ (4,091,446)	$ (3,023,982)	$ (2,475,320)	$ (1,912,941)

28	29	30
$ 888,459	$ 951,769	$ 66,380,446
$ 2,380,551	$ 2,484,603	$ 94,786,846
$ 7,337,147	$ 7,655,066	$ 251,238,279
$ (4,316,647)	$ (4,361,579)	$ 79,812,618
$ 501,699	$ 535,946	$ 29,138,468
$ (10,245,640)	$ (10,243,238)	$ 114,394,959
$ 2,061,150	$ 2,176,706	$ 111,812,573
$ -	$ -	
$ (1,393,281)	$ (800,726)	$ 747,564,188

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$ 2,061,150	$ 2,176,706	$ 111,812,573
$ -	$ -	
$ (1,393,281)	$ (800,726)	$ 747,564,188

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 2

	NEW CONSTRUCTION		RENOVATIONS	
Residential (units)				
Stand-Alone Apartments	0	units	296	units
Mixed Use Apartments	246	units	0	units
Retail	0	square feet	762000	square feet
Restaurant	0	square feet	190000	square feet
Office	200000	square feet	0	square feet

Fiscal Impact and Feasibility Analysis

Summary of Assumptions and Inputs

Development	NEW CONSTRUCTION		RENOVATIONS	
Stand-Alone Apartments				
Monthly Rent/s.f.	$1.10	per square foot	$1.10	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	800	square feet	950	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Mixed-Use Apartments				
Monthly Rent/s.f.	$1.15	per square foot	$1.15	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	1,000	square feet	1,000	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Storefront Retail				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$13.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$150	per square foot	$150	per square foot
Restaurant				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$13.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$200	per square foot	$200	per square foot
Office/Institutional				
Annual Lease/s.f.	$15.00	per square foot (NNN)	$13.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,000		17,000	
2013 Development Cost	$160	per square foot	$160	per square foot

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 2

	NEW CONSTRUCTION		RENOVATIONS	
Property and Acquisition				
Property Acquisition North (Gross)	$400,000	per acre	$300,000	per acre
Property Acquisition South (Gross)	$0	per acre	$0	per acre
Remediation	$0	per acre	$0	per acre
Roads	$0	per acre	$0	per acre
Site Development and Utilities	$0	per acre	$0	per acre
Demolition	$0	per acre	$0	per acre
Soft Costs and Contingency @ 20%	$80,000	per acre	$60,000	per acre
ROW and Open Space Multiplier	20%	of net buildable area	20%	of net buildable area
Financial				
Inflation Rate	2.50%		2.50%	
Annual Rent/Sales Increases	2.50%		2.50%	
Cap Rates	Going In	Terminal	Going In	Terminal
Apartment	6.20%	6.80%	6.20%	6.80%
Office	7.50%	8.30%	7.50%	8.30%
Retail	7.80%	8.30%	7.80%	8.30%
Interest Rate	5.50%		5.50%	
Interest Rate (Public Garage)	5.00%		5.00%	
Public Finance Discount Rate	6.00%		6.00%	
Private Finance Discount Rate	15.00%		15.00%	
Commission (Going Out)		4%		4%
Term	30	years	30	years
Residential Amortization	27.5	years	27.5	years
Commercial Amortization	39	years	39	years
Loan-to-Value Ratio	80%		80%	
Debt Coverage Ratio	1.25		1.25	
Capital Gains Tax	15%		15%	
Public Finance				
CID	1.00%	of assessed value	1.00%	of assessed value
TDD	1.00%	of assessed value	1.00%	of assessed value
Tax Credits				
Federal Historic Tax Credit				
Percent of Eligible Costs	20%		20%	
Eligible Costs as % of Total	85%		85%	
% Equity Value of Credits	80%		80%	
State Historic Tax Credit				
Percent of Eligible Costs	25%		25%	
Eligible Costs as % of Total	85%		85%	
% Equity Value of Credits	75%		75%	
Federal LIHTC: 9%				
10 Year Allocation	90%		90%	
Eligible Costs as % of Total Building Cost	95%		95%	
Basis Boost	130%		130%	
% Equity Value of Credits	80%		80%	
State LIHTC: 9%				
10 Year Allocation	90%		90%	
Basis Boost	130%		130%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	40%		40%	
Federal LIHTC: 4%				
10 Year Allocation	40%		40%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	80%		80%	

BASIC DEVELOPMENT PROGRAM - CHEROKEE ALTERNATE 2

	NEW CONSTRUCTION		RENOVATIONS	
State LIHTC: 4%				
10 Year Allocation	40%		40%	
Eligible Costs as % of Total Building Cost	95%		95%	
% Equity Value of Credits	40%		40%	
New Market Tax Credit				
7 Year Allocation	39%		39%	
Eligible Costs as % of Total Building Cost	90%		90%	
% Equity Value of Credits	75%		75%	
Government Revenue and Valuation Inputs				
Apartment				
Cap Rate	11%		11%	
Commercial				
Appraised Value	90%	of actual value	90%	of actual value
Assessed Value	70%	of appraised value	70%	of appraised value
Valuation Approach				
Apartment	Income		Income	
For-sale housing	Sales		Sales	
Retail	Income		Income	
Office	Income		Income	
Assumed TIF-eligible Real Property Tax rate	$ 7.4674		$ 7.4674	
Assumed TIF-eligible Sales Tax rate	1.6438%		1.6438%	
Operational				
Apartment, Condo, Townhome				
Stabilized Occupancy	95%		95%	
Taxes	10%		10%	
Operating Expenses (non-tax)	30%	Effective Income	30%	Effective Income
Replacement Reserve	$250	per unit	$250	per unit
Retail				
Stabilized Occupancy	95%		95%	
Annual Operating Expenses	$2.50	per square foot	$2.50	per square foot
Taxes	$1.00	per square foot	$0.00	per square foot
Tenant Improvements	$3	per 5-year lease	$15	per 5-year lease
Leasing Commissions	1%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year
Restaurant				
Stabilized Occupancy	95%		95%	
Annual Operating Expenses	$2.50	per square foot	$2.50	per square foot
Taxes	$0.00	per square foot	$0.00	per square foot
Tenant Improvements	$15	per 5-year lease	$15	per 5-year lease
Leasing Commissions	6%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year
Office				
Stabilized Occupancy	95%		95%	
Class A Taxes (inc. in gross rent)	$0.00	per square foot	$0.00	per square foot
Class A Annual Operating Expenses (non-tax)	$2.50	per square foot	$2.50	per square foot
Class B Taxes Included	$0.00	per square foot	$0.00	per square foot
Class B Annual Operating Expenses (non-tax)	$2.50	per square foot	$2.50	per square foot
Tenant Improvements	$20	per 5-year lease	$20	per 5-year lease
Leasing Commissions	6%	per 5-year lease	6%	per 5-year lease
Reserve	1.5%	per year	1.5%	per year

BASIC DEVELOPMENT PROGRAM - KINGSHIGHWAY ALTERNATE 2

	NEW CONSTRUCTION		RENOVATIONS	
Residential (units)				
Affordable Housing	170	units	0	units
Stand-Alone Apartments	153	units	332	units
Mixed Use Apartments	358	units	0	units
Retail	232000	square feet	0	square feet
Restaurant	78000	square feet	0	square feet
Office	2000000	square feet	0	square feet

Fiscal Impact and Feasibility Analysis

Summary of Assumptions and Inputs

Development	NEW CONSTRUCTION		RENOVATIONS	
Affordable Housing				
Monthly Rent/s.f.	$0.90	per square foot	$0.90	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	800	square feet	800	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$150	per square foot	$160	per square foot
Non-Profit Cost Multiplier	60%	of Private Dev Cost	60%	of Private Dev Cost
Total Development Cost	$240	per square foot	$260	per square foot
Stand-Alone Apartments				
Monthly Rent/s.f.	$1.10	per square foot	$1.10	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	800	square feet	950	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Mixed-Use Apartments				
Monthly Rent/s.f.	$1.15	per square foot	$1.15	per square foot
Monthly Parking	$0	per month	$0	per month
Average Unit Size	1,000	square feet	1,000	square feet
Number of Units	90	per acre	90	per acre
2011 Private Development Cost	$145	per square foot	$160	per square foot
Non-Profit Cost Multiplier	0%	of Private Dev Cost	0%	of Private Dev Cost
Total Development Cost	$150	per square foot	$160	per square foot
Storefront Retail				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$20.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$150	per square foot	$150	per square foot
Restaurant				
Annual Lease/s.f.	$13.00	per square foot (NNN)	$20.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,850		17,850	
2013 Development Cost	$200	per square foot	$200	per square foot
Office/Institutional				
Annual Lease/s.f.	$15.00	per square foot (NNN)	$18.00	per square foot (NNN)
Monthly Parking	$0	per month	$0	per month
Square Feet (net leasable)	17,000		17,000	
2013 Development Cost	$160	per square foot	$160	per square foot

Property and Acquisition				
Property Acquisition North (Gross)	$300,000	per acre	$300,000	per acre
Property Acquisition South (Gross)	$0	per acre	$0	per acre
Remediation	$0	per acre	$0	per acre
Roads	$0	per acre	$0	per acre
Site Development and Utilities	$0	per acre	$0	per acre
Demolition	$0	per acre	$0	per acre
Soft Costs and Contingency @ 20%	$60,000	per acre	$60,000	per acre
ROW and Open Space Multiplier	20%	of net buildable area	20%	of net buildable area

Financial				
Inflation Rate	2.50%		2.50%	
Annual Rent/Sales Increases	2.50%		2.50%	
Cap Rates	Going In	Terminal	Going In	Terminal
Apartment	6.20%	6.80%	6.20%	6.80%
Office	7.50%	8.30%	7.50%	8.30%
Retail	7.80%	8.30%	7.80%	8.30%
Interest Rate	5.50%		5.50%	
Interest Rate (Public Garage)	5.00%		5.00%	
Public Finance Discount Rate	6.00%		6.00%	
Private Finance Discount Rate	15.00%		15.00%	
Commission (Going Out)		4%		4%
Term	30	years	30	years
Residential Amortization	27.5	years	27.5	years
Commercial Amortization	39	years	39	years
Loan-to-Value Ratio	80%		80%	
Debt Coverage Ratio	1.25		1.25	
Capital Gains Tax	15%		15%	

Public Finance				
CID	1.00%	of assessed value	1.00%	of assessed value
TDD	1.00%	of assessed value	1.00%	of assessed value

Tax Credits		
Federal Historic Tax Credit		
Percent of Eligible Costs	20%	20%
Eligible Costs as % of Total	85%	85%
% Equity Value of Credits	80%	80%
State Historic Tax Credit		
Percent of Eligible Costs	25%	25%
Eligible Costs as % of Total	85%	85%
% Equity Value of Credits	75%	75%
Federal LIHTC: 9%		
10 Year Allocation	90%	90%
Eligible Costs as % of Total Building Cost	95%	95%
Basis Boost	130%	130%
% Equity Value of Credits	80%	80%
State LIHTC: 9%		
10 Year Allocation	90%	90%
Basis Boost	130%	130%
Eligible Costs as % of Total Building Cost	95%	95%
% Equity Value of Credits	40%	40%
Federal LIHTC: 4%		
10 Year Allocation	40%	40%
Eligible Costs as % of Total Building Cost	95%	95%
% Equity Value of Credits	80%	80%
State LIHTC: 4%		
10 Year Allocation	40%	40%

Eligible Costs as % of Total Building Cost	95%	95%
% Equity Value of Credits	40%	40%
New Market Tax Credit		
7 Year Allocation	39%	39%
Eligible Costs as % of Total Building Cost	90%	90%
% Equity Value of Credits	75%	75%

Government Revenue and Valuation Inputs

Apartment		
Cap Rate	11%	11%
Residential		
Appraised Value	90% of actual value	90% of actual value
Assessed Value	70% of appraised value	70% of appraised value
Commercial		
Appraised Value	90% of actual value	90% of actual value
Assessed Value	70% of appraised value	70% of appraised value
Valuation Approach		
Apartment	Income	Income
For-sale housing	Sales	Sales
Retail	Income	Income
Office	Income	Income
Assumed TIF-eligible Real Property Tax rate	$ 7.4674	$ 7.4674
Assumed TIF-eligible Sales Tax rate	1.6438%	1.6438%

Operational

Apartment, Condo, Townhome		
Stabilized Occupancy	95%	95%
Taxes	10%	10%
Operating Expenses (non-tax)	30% Effective Income	30% Effective Income
Replacement Reserve	$250 per unit	$250 per unit
Retail		
Stabilized Occupancy	95%	95%
Annual Operating Expenses	$2.50 per square foot	$2.50 per square foot
Taxes	$1.00 per square foot	$0.00 per square foot
Tenant Improvements	$3 per 5-year lease	$15 per 5-year lease
Leasing Commissions	1% per 5-year lease	6% per 5-year lease
Reserve	1.5% per year	1.5% per year
Restaurant		
Stabilized Occupancy	95%	95%
Annual Operating Expenses	$2.50 per square foot	$2.50 per square foot
Taxes	$0.00 per square foot	$0.00 per square foot
Tenant Improvements	$15 per 5-year lease	$15 per 5-year lease
Leasing Commissions	6% per 5-year lease	6% per 5-year lease
Reserve	1.5% per year	1.5% per year
Office		
Stabilized Occupancy	95%	95%
Class A Taxes (inc. in gross rent)	$0.00 per square foot	$0.00 per square foot
Class A Annual Operating Expenses (non-tax)	$2.50 per square foot	$2.50 per square foot
Class B Taxes Included	$0.00 per square foot	$0.00 per square foot
Class B Annual Operating Expenses (non-tax)	$2.50 per square foot	$2.50 per square foot
Tenant Improvements	$20 per 5-year lease	$20 per 5-year lease
Leasing Commissions	6% per 5-year lease	6% per 5-year lease
Reserve	1.5% per year	1.5% per year

LAND RESIDUAL VALUES - CHEROKEE ALTERNATE 2

NEW CONSTRUCTION

	Mixed Use Apartments	Retail	Office
STABILIZED NOI	$1,935,036	($90,000)	$2,812,500
CAP RATE	6.80%	7.80%	7.50%
ESTIMATED PROPERTY VALUE	**$28,456,412**	**($1,153,846)**	**$37,500,000**
LRV @ 15%	$ 4,268,462	$ (173,077)	$ 5,625,000
LRV @ 20%	$ 5,691,282	$ (230,769)	$ 7,500,000

LRV @ 15%	$ 9,720,385
LRV @ 20%	$ 12,960,513

RENOVATIONS

	Residential (units)	Mixed Use Apartments	Retail	Office
STABILIZED NOI				
CAP RATE				
ESTIMATED PROPERTY VALUE				
LRV @ 15%		$ -	$ -	$ -
LRV @ 20%		$ -	$ -	$ -

LRV @ 15%	$ -
LRV @ 20%	$ -
TOTAL ACREAGE NEEDED	10.2
subsidy available	$150,339,735
TOTAL COST	$324,023,863
TOTAL VALUE	$109,785,495

LAND RESIDUAL VALUES - KINGSHIGHWAY ALTERNATE 2

NEW CONSTRUCTION

		Stand-Alone Apartments	Mixed Use Apartments	Retail	Restaurant	Office
STABILIZED NOI		$920,938	$2,816,028	$2,775,200	$963,300	$28,462,500
CAP RATE		6.80%	6.80%	7.80%	7.80%	7.50%
ESTIMATED PROPERTY VALUE		**$13,543,200**	**$41,412,176**	**$35,579,487**	**$12,350,000**	**$379,500,000**
LRV @ 15%		$ 2,031,480	$ 6,211,826	$ 5,336,923	$ 1,852,500	$ 56,925,000
LRV @ 20%		$ 2,708,640	$ 8,282,435	$ 7,115,897	$ 2,470,000	$ 75,900,000
LRV @ 15%	$ 72,357,730					
LRV @ 20%	$ 96,476,973					

RENOVATIONS

	Residential (units)	Stand-Alone Apartments	Mixed Use Apartments	Retail	Restaurant	Office
STABILIZED NOI						
CAP RATE						
ESTIMATED PROPERTY VALUE						
LRV @ 15%		$ -	$ -	$ -	$ -	$ -
LRV @ 20%		$ -	$ -	$ -	$ -	$ -
LRV @ 15%	$ -					
LRV @ 20%	$ -					
TOTAL ACREAGE NEEDED	47.4					
subsidy available	$198,483,915					
TOTAL COST	$606,524,539					
TOTAL VALUE	$546,342,173					

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 2

		0	1	2	3	4	5	6
AFTER TAX CASH FLOW BEFORE SUBSIDY								
NEW CONSTRUCTION								
Residential (units)								
Mixed Use Apartments		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office		$ -	$ -	$ -	$ -	$ -	$ -	$ -
RENOVATIONS								
Residential (units)								
Stand-Alone Apartments		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retail		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Restaurant		$ -	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL		$ -	$ -	$ -	$ -	$ -	$ -	$ -
ATIRR BEFORE SUBSIDY	0.51%							
AFTER TAX CASH FLOW AFTER SUBSIDY								
NEW CONSTRUCTION								
Residential (units)								
Mixed Use Apartments		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office		$ -	$ -	$ -	$ -	$ -	$ -	$ -
RENOVATIONS								
Residential (units)								
Stand-Alone Apartments		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Retail		$ -	$ -	$ -	$ -	$ -	$ -	$ -
Restaurant		$ -	$ -	$ -	$ -	$ -	$ -	$ -
GRAND TOTAL	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ATIRR BEFORE SUBSIDY	2.58%							

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 2

	7	8	9	10	11	12
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ (7,490,694)	$ (440,914)	$ (412,864)	$ (384,112)	$ (354,641)	$ (324,434)
Office	$ -	$ -	$ (9,544,040)	$ (1,553,023)	$ (1,537,623)	$ (1,521,837)
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ (2,209,404)	$ (972,431)	$ (940,569)	$ (907,911)	$ (874,436)	$ (840,124)
Retail	$ -	$ -	$ (198,262,229)	$ (11,332,780)	$ (11,290,553)	$ (11,247,271)
Restaurant	$ -	$ -	$ (3,153,413)	$ (2,759,193)	$ (2,746,525)	$ (2,733,540)
GRAND TOTAL	$ (9,700,099)	$ (1,413,345)	$ (212,313,116)	$ (16,937,019)	$ (16,803,778)	$ (16,667,206)
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ (3,348,390)	$ (440,914)	$ (412,864)	$ (384,112)	$ (354,641)	$ (324,434)
Office	$ -	$ -	$ 5,069,594	$ (1,553,023)	$ (1,537,623)	$ (1,521,837)
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ (2,209,404)	$ (972,431)	$ (940,569)	$ (907,911)	$ (874,436)	$ (840,124)
Retail	$ -	$ -	$ (103,428,812)	$ (11,332,780)	$ (11,290,553)	$ (11,247,271)
Restaurant	$ -	$ -	$ (3,153,413)	$ (2,759,193)	$ (2,746,525)	$ (2,733,540)
GRAND TOTAL	$ (5,557,794)	$ (1,413,345)	$ (102,866,063)	$ (16,937,019)	$ (16,803,778)	$ (16,667,206)
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 2

	13	14	15	16	17	18
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,007,970	$ 1,073,030	$ 1,139,716	$ 1,208,070	$ 1,278,133	$ 1,349,947
Office	$ (1,505,657)	$ (1,489,073)	$ (900,106)	$ (865,258)	$ (829,538)	$ (792,926)
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 562,043	$ 633,179	$ 706,093	$ 780,831	$ 857,437	$ 935,958
Retail	$ (11,202,906)	$ (11,157,433)	$ (9,574,800)	$ (9,479,249)	$ (9,381,309)	$ (9,280,921)
Restaurant	$ (2,720,231)	$ (2,706,589)	$ (2,231,799)	$ (2,203,134)	$ (2,173,752)	$ (2,143,636)
GRAND TOTAL	$ (13,858,782)	$ (13,646,886)	$ (10,860,896)	$ (10,558,740)	$ (10,249,030)	$ (9,931,577)
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,007,970	$ 1,073,030	$ 1,139,716	$ 1,208,070	$ 1,278,133	$ 1,349,947
Office	$ (1,505,657)	$ (1,489,073)	$ (900,106)	$ (865,258)	$ (829,538)	$ (792,926)
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 562,043	$ 633,179	$ 706,093	$ 780,831	$ 857,437	$ 935,958
Retail	$ (11,202,906)	$ (11,157,433)	$ (9,574,800)	$ (9,479,249)	$ (9,381,309)	$ (9,280,921)
Restaurant	$ (2,720,231)	$ (2,706,589)	$ (2,231,799)	$ (2,203,134)	$ (2,173,752)	$ (2,143,636)
GRAND TOTAL	$ (13,858,782)	$ (13,646,886)	$ (10,860,896)	$ (10,558,740)	$ (10,249,030)	$ (9,931,577)
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 2

	19	20	21	22	23	24
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,423,557	$ 1,499,007	$ 1,576,343	$ 1,655,613	$ 1,736,864	$ 1,820,146
Office	$ (755,398)	$ (53,378)	$ 5,764	$ 66,384	$ 128,519	$ 192,208
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 1,016,442	$ 1,098,938	$ 1,183,497	$ 1,270,169	$ 1,359,008	$ 1,450,069
Retail	$ (9,178,023)	$ (7,285,406)	$ (7,123,245)	$ (6,957,030)	$ (6,786,659)	$ (6,612,030)
Restaurant	$ (2,112,766)	$ (1,604,553)	$ (1,557,706)	$ (1,509,688)	$ (1,460,470)	$ (1,410,022)
GRAND TOTAL	$ (9,606,188)	$ (6,345,391)	$ (5,915,347)	$ (5,474,553)	$ (5,022,738)	$ (4,559,628)
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,423,557	$ 1,499,007	$ 1,576,343	$ 1,655,613	$ 1,736,864	$ 1,820,146
Office	$ (755,398)	$ (53,378)	$ 5,764	$ 66,384	$ 128,519	$ 192,208
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 1,016,442	$ 1,098,938	$ 1,183,497	$ 1,270,169	$ 1,359,008	$ 1,450,069
Retail	$ (9,178,023)	$ (7,285,406)	$ (7,123,245)	$ (6,957,030)	$ (6,786,659)	$ (6,612,030)
Restaurant	$ (2,112,766)	$ (1,604,553)	$ (1,557,706)	$ (1,509,688)	$ (1,460,470)	$ (1,410,022)
GRAND TOTAL	$ (9,606,188)	$ (6,345,391)	$ (5,915,347)	$ (5,474,553)	$ (5,022,738)	$ (4,559,628)
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS - CHEROKEE ALTERNATE 2

	25	26	27	28	29	30
AFTER TAX CASH FLOW BEFORE SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,905,511	$ 1,993,010	$ 2,082,696	$ 2,174,624	$ 2,268,851	$ 59,767,918
Office	$ 1,024,666	$ 1,113,884	$ 1,205,332	$ 1,299,066	$ 1,395,144	$ 87,526,915
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 1,543,406	$ 1,639,076	$ 1,737,138	$ 1,837,651	$ 1,940,678	$ 99,688,318
Retail	$ (4,361,764)	$ (4,117,137)	$ (3,866,394)	$ (3,609,383)	$ (3,345,947)	$ 118,516,823
Restaurant	$ (944,058)	$ (878,824)	$ (811,959)	$ (743,423)	$ (673,173)	$ 49,923,393
GRAND TOTAL	$ (832,239)	$ (249,991)	$ 346,812	$ 958,536	$ 1,585,553	$ 415,423,367
ATIRR BEFORE SUBSIDY						
AFTER TAX CASH FLOW AFTER SUBSIDY						
NEW CONSTRUCTION						
Residential (units)						
Mixed Use Apartments	$ 1,905,511	$ 1,993,010	$ 2,082,696	$ 2,174,624	$ 2,268,851	$ 59,767,918
Office	$ 1,024,666	$ 1,113,884	$ 1,205,332	$ 1,299,066	$ 1,395,144	$ 87,526,915
RENOVATIONS						
Residential (units)						
Stand-Alone Apartments	$ 1,543,406	$ 1,639,076	$ 1,737,138	$ 1,837,651	$ 1,940,678	$ 99,688,318
Retail	$ (4,361,764)	$ (4,117,137)	$ (3,866,394)	$ (3,609,383)	$ (3,345,947)	$ 118,516,823
Restaurant	$ (944,058)	$ (878,824)	$ (811,959)	$ (743,423)	$ (673,173)	$ 49,923,393
GRAND TOTAL	$ (832,239)	$ (249,991)	$ 346,812	$ 958,536	$ 1,585,553	$ 415,423,367
ATIRR BEFORE SUBSIDY						

CONSOLIDATED RUNS - KINGSHIGHWAY ALTERNATE 2

	0	1	2	3	4	5	6	7	8	9
AFTER TAX CASH FLOW BEFORE SUBSIDY										
NEW CONSTRUCTION										
Residential (units)										
Affordable Housing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (663,244)
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ (729,568)	$ (190,983)	$ (177,031)	
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,230,862)	$ (865,832)	$ (830,768)	
Retail	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,939,358)
Restaurant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (673,171)
Office	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (96,585,689)
RENOVATIONS										
Residential (units)										
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,478,115)	$ (977,255)	$ (938,596)	
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Retail	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Restaurant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Office	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
GRAND TOTAL	$ -	$ -	$ -	$ -	$ -	$ -	$ (5,438,546)	$ (2,034,070)	$ (101,807,856)	
ATIRR BEFORE SUBSIDY	8.62%									

AFTER TAX CASH FLOW AFTER SUBSIDY										
NEW CONSTRUCTION										
Residential (units)										
Affordable Housing	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (663,244)
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ (729,568)	$ (190,983)	$ (177,031)	
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,230,862)	$ (865,832)	$ (830,768)	
Retail	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,939,358)
Restaurant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (673,171)
Office	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 51,260,451
RENOVATIONS										
Residential (units)										
Stand-Alone Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,478,115)	$ (977,255)	$ (938,596)	
Mixed Use Apartments	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Retail	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Restaurant	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Office	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
GRAND TOTAL	$ -	$ -	$ -	$ -	$ -	$ -	$ (5,438,546)	$ (2,034,070)	$ 46,038,284	
ATIRR BEFORE SUBSIDY	16.49%									

10	11	12	13	14	15	16	17	18	19	20	21
$ (335,971)	$ (327,258)	$ (318,327)	$ (309,173)	$ (299,790)	$ 82,899	$ 102,615	$ 122,824	$ 143,538	$ 164,770	$ 186,533	$ 208,840
$ (162,730)	$ (148,072)	$ (133,047)	$ 470,740	$ 501,704	$ 533,442	$ 565,974	$ 599,319	$ 633,497	$ 668,530	$ 704,439	$ 741,245
$ (794,829)	$ 793,435	$ 870,967	$ 950,438	$ 1,031,895	$ 1,115,389	$ 1,200,970	$ 1,288,691	$ 1,378,605	$ 1,470,767	$ 1,565,233	$ 1,662,060
$ (2,312,711)	$ (2,318,920)	$ (2,325,284)	$ (2,331,807)	$ (2,338,493)	$ (2,345,347)	$ (2,971,893)	$ (2,989,893)	$ (3,008,344)	$ (3,027,257)	$ (3,046,642)	$ (3,066,511)
$ (585,566)	$ (582,751)	$ (579,866)	$ (576,908)	$ (573,877)	$ (570,769)	$ (303,618)	$ (292,191)	$ (280,479)	$ (268,475)	$ (256,170)	$ (243,557)
$ (18,230,603)	$ (18,153,600)	$ (18,074,673)	$ (17,993,773)	$ (17,910,850)	$ (12,678,151)	$ (12,434,212)	$ (12,184,176)	$ (11,927,888)	$ (11,665,193)	$ (5,423,943)	$ (4,970,524)
$ (898,970)	$ (858,354)	$ (816,722)	$ 630,399	$ 710,187	$ 791,970	$ 875,797	$ 961,720	$ 1,049,791	$ 1,140,063	$ 1,232,593	$ 1,327,435
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (23,321,380)	$ (21,595,521)	$ (21,376,952)	$ (19,160,084)	$ (18,879,223)	$ (13,070,567)	$ (12,964,367)	$ (12,493,707)	$ (12,011,281)	$ (11,516,794)	$ (5,037,957)	$ (4,341,012)

$ (335,971)	$ (327,258)	$ (318,327)	$ (309,173)	$ (299,790)	$ 82,899	$ 102,615	$ 122,824	$ 143,538	$ 164,770	$ 186,533	$ 208,840
$ (162,730)	$ (148,072)	$ (133,047)	$ 470,740	$ 501,704	$ 533,442	$ 565,974	$ 599,319	$ 633,497	$ 668,530	$ 704,439	$ 741,245
$ (794,829)	$ 793,435	$ 870,967	$ 950,438	$ 1,031,895	$ 1,115,389	$ 1,200,970	$ 1,288,691	$ 1,378,605	$ 1,470,767	$ 1,565,233	$ 1,662,060
$ (2,312,711)	$ (2,318,920)	$ (2,325,284)	$ (2,331,807)	$ (2,338,493)	$ (2,345,347)	$ (2,971,893)	$ (2,989,893)	$ (3,008,344)	$ (3,027,257)	$ (3,046,642)	$ (3,066,511)
$ (585,566)	$ (582,751)	$ (579,866)	$ (576,908)	$ (573,877)	$ (570,769)	$ (303,618)	$ (292,191)	$ (280,479)	$ (268,475)	$ (256,170)	$ (243,557)
$ (18,230,603)	$ (18,153,600)	$ (18,074,673)	$ (17,993,773)	$ (17,910,850)	$ (12,678,151)	$ (12,434,212)	$ (12,184,176)	$ (11,927,888)	$ (11,665,193)	$ (5,423,943)	$ (4,970,524)
$ (898,970)	$ (858,354)	$ (816,722)	$ 630,399	$ 710,187	$ 791,970	$ 875,797	$ 961,720	$ 1,049,791	$ 1,140,063	$ 1,232,593	$ 1,327,435
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ (23,321,380)	$ (21,595,521)	$ (21,376,952)	$ (19,160,084)	$ (18,879,223)	$ (13,070,567)	$ (12,964,367)	$ (12,493,707)	$ (12,011,281)	$ (11,516,794)	$ (5,037,957)	$ (4,341,012)

22	23	24	25	26	27	28	29	30
$ 231,705	$ 255,141	$ 279,163	$ 303,786	$ 329,024	$ 354,893	$ 381,409	$ 408,588	$ 28,496,656
$ 778,972	$ 817,642	$ 857,278	$ 897,905	$ 939,549	$ 982,233	$ 1,025,984	$ 1,070,829	$ 40,851,796
$ 1,761,308	$ 1,863,037	$ 1,967,310	$ 2,074,189	$ 2,183,740	$ 2,296,030	$ 2,411,128	$ 2,529,102	$ 94,308,814
$ (3,775,389)	$ (3,808,790)	$ (3,843,026)	$ (3,878,118)	$ (3,914,087)	$ (3,950,955)	$ (4,316,647)	$ (4,361,579)	$ 79,812,618
$ 85,471	$ 108,187	$ 131,471	$ 155,337	$ 179,800	$ 204,874	$ 501,699	$ 535,946	$ 29,138,468
$ (4,505,770)	$ (4,029,397)	$ 3,167,632	$ 3,863,965	$ 4,577,706	$ 5,309,291	$ 6,059,166	$ 6,827,787	$ 877,946,939
$ 1,424,649	$ 1,524,293	$ 1,626,428	$ 1,731,117	$ 1,838,423	$ 1,948,411	$ 2,061,150	$ 2,176,706	$ 111,812,573
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
$ (3,999,054)	$ (3,269,887)	$ 4,186,256	$ 5,148,182	$ 6,134,155	$ 7,144,778	$ 8,123,888	$ 9,187,379	$ 1,262,367,863

$ 231,705	$ 255,141	$ 279,163	$ 303,786	$ 329,024	$ 354,893	$ 381,409	$ 408,588	$ 28,496,656
$ 778,972	$ 817,642	$ 857,278	$ 897,905	$ 939,549	$ 982,233	$ 1,025,984	$ 1,070,829	$ 40,851,796
$ 1,761,308	$ 1,863,037	$ 1,967,310	$ 2,074,189	$ 2,183,740	$ 2,296,030	$ 2,411,128	$ 2,529,102	$ 94,308,814
$ (3,775,389)	$ (3,808,790)	$ (3,843,026)	$ (3,878,118)	$ (3,914,087)	$ (3,950,955)	$ (4,316,647)	$ (4,361,579)	$ 79,812,618
$ 85,471	$ 108,187	$ 131,471	$ 155,337	$ 179,800	$ 204,874	$ 501,699	$ 535,946	$ 29,138,468
$ (4,505,770)	$ (4,029,397)	$ 3,167,632	$ 3,863,965	$ 4,577,706	$ 5,309,291	$ 6,059,166	$ 6,827,787	$ 877,946,939
$ 1,424,649	$ 1,524,293	$ 1,626,428	$ 1,731,117	$ 1,838,423	$ 1,948,411	$ 2,061,150	$ 2,176,706	$ 111,812,573
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
$ (3,999,054)	$ (3,269,887)	$ 4,186,256	$ 5,148,182	$ 6,134,155	$ 7,144,778	$ 8,123,888	$ 9,187,379	$ 1,262,367,863

Transportation:
Bernardin, Lochmueller & Associates Report

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TRANSPORTATION ANALYSIS OF STATION AREA PLANS

KINGSHIGHWAY STATION & CHEROKEE STATION

JUNE 24, 2013

Bernardin, Lochmueller & Associates (BLA) completed the following transportation analysis of station area plans for the future Kingshighway and Cherokee Stations along the proposed Northside-Southside MetroLink alignment. The purpose of this analysis was to identify the plans' impact upon multi-modal transportation – including pedestrians, cyclists, transit users, and motorists – and to recommend transportation improvements that would ultimately help facilitate implementation of the preferred plan for each station.

Our recommendations were guided by widely-accepted transportation planning principles for transit station areas, transit-oriented neighborhoods, and urban mixed-used developments. The overarching goal of the recommendations was to set the stage for future transit-oriented development within the station areas. The recommendations include up to three Tiers of improvements, with Tier 1 being the minimum suggested enhancement. Tiers 2 and 3 are generally more expansive, but would provide added benefits.

The specific tasks performed in conjunction with this analysis included:

- Attending technical advisory committee and public meetings;
- Participating in project team coordination meetings and work sessions;
- Obtaining and reviewing information of record and previous studies concerning the Northside-Southside MetroLink alignment and other pertinent transportation projects;
- Conducting field reconnaissance of existing transportation features within the station areas, including ascertaining physical characteristics and transportation activities;
- Defining station areas in accordance with probable ridership capture areas, including specifying potential transit capture rates based on proximity to the station and quality of the anticipated station area pedestrian environment;
- Providing general station area multi-modal transportation guidelines;
- Identifying existing transportation conditions within the station areas, including traffic circulation patterns, major street configurations, pedestrian and bicycle accommodations, and transit services;
- Contributing to the development of preliminary station area plans by identifying key multi-modal transportation enhancements;
- Conducting a thorough analysis of the alternative station area plans, emphasizing the relationship between development and transportation needs;
- Forecasting order-of-magnitude transit ridership, traffic generation, and parking needs of each alternative station area plan for comparative purposes; and
- Developing transportation recommendations for the preferred station area plan.

General Station Area Transportation Principles & Guidelines

The following general multi-modal transportation principles and guidelines are offered as strategies for maximizing the connectivity of the station areas. The converse of these suggestions serves as guidance as to what not to do given the long lead time that will occur prior to implementation of the stations.

Design Pedestrian Routes to Be Direct and Minimize Conflicts:

- Minimize walking distances, while ensuring that sufficient circulation space is provided. People always seek the shortest walking route to their destination.
- Provide sufficient space through waiting areas (e.g., bus stops) to safely accommodate demand for both waiting passengers and through pedestrians.
- Minimize elevation changes or avoid them altogether wherever possible. Where necessary, ramps, small inclines, escalators, or elevators should be provided instead of, or in addition to, steps.
- Keep pedestrian routes clear of structural elements such as pillars, to increase accessibility, ease circulation, and maintain visibility and security.
- Locate information points, such as real-time information displays, in locations that avoid impeding pedestrian flows. Adequate space should be provided to allow customers to stand out of travel ways while reading displays.
- Wherever possible, provide multiple access routes to increase accessibility from all directions and to help distribute the flow of people during peak travel periods.
- Introduce traffic calming measures as necessary to control vehicle speeds around stations.
- Design pedestrian routes to meet accessibility standards for people with disabilities.
- Create visible pedestrian pathways through parking facilities delineated by sidewalks or surface markings.
- Design pedestrian waiting areas with enough space to accommodate passengers waiting to be picked up, with lighting, seating, and weather protection.

Create a Strong Sense of Security for Customers:

- The prominent use of closed circuit television (CCTV) should be considered for the station area.
- Avoid blind corners, alcoves, and other secluded locations.
- Ensure that shrubbery or other pedestrian enhancements do not block visibility of pedestrians or create hidden areas that pose a security risk.

Passengers Should Be Able to Orient Themselves Quickly and Easily:

- Minimize the need for wayfinding through direct line-of-sight connections along pedestrian desire lines where possible, particularly to connecting bus stops.
- Avoid changes in direction and blind corners, which can disorient customers.

- Where line-of-sight connections are not possible, provide wayfinding within stations, particularly to bus and rail transfer points and key local destinations.
- Wayfinding should be consistent across stations. Typefaces and symbols should be legible and signs should not be obscured by other signs or equipment.
- Prominently display maps to enable customers to locate destinations. Maps should include station plans, locations of parking, transit connections, bicycle racks, the local street network, and key nearby destinations.
- The station itself should be as visible as possible from the surrounding area.

Create a Network of Safe, Direct, and Appealing Walking Routes to the Station:

- Allow pedestrians to exit directly onto the street sidewalk.
- Use a variety of design treatments to ensure safe and comfortable pedestrian crossings of roads and driveways in the station area. These can include marked crosswalks, traffic signals, median islands, and curb bump-outs.
- Do not compromise pedestrian safety to accommodate greater auto volumes. Dual right-turn lanes and free right-turn lanes should be avoided throughout the station area and particularly along primary pedestrian routes.
- Incorporate pedestrian-friendly design and operations into the traffic signals in the vicinity of the station (e.g., pedestrian signal-heads with countdown timers, adequate pedestrian clearance time, and well-marked crosswalks). As appropriate, additional improvements such as leading pedestrian intervals, curb extensions, and exclusive pedestrian phases should be considered.
- Provide lighting at a pedestrian scale, with particular attention paid to locations with potential vehicle–pedestrian conflicts.
- Provide trees, wider sidewalks, seating and other street furniture to make routes more appealing to pedestrians. Shade should be a priority given the summer climate.

Establish Safe and Comfortable Bike Connections Leading to and from the Station:

- Provide appropriate bicycle facilities to and from the station that follow local best practices for bicycle design (e.g., bike lanes, shared-lane markings, and trails) and complement the regional network on on-street bicycle routes and off-street trails.
- Provide bicycle wayfinding to the station from adjoining streets and bikeways.
- Provide area maps in the station locating surrounding streets, popular destinations, and existing bikeways.

Provide Adequate Bike Facilities at the Station:

- Bike connections into and out of the station should minimize conflicts between bicyclists, pedestrians, automobiles, and buses.
- Provide adequate bicycle racks to meet demand, as space permits.
- Locate bicycle parking in secure, well-lit locations along bicyclists' desired route from major bikeways to the station entrance(s). Racks should not impede pedestrian flows.

- Locate bicycle parking where weather protection exists (such as a roof or awning), where possible. Covered parking in other locations may be warranted.
- Locate bicycle parking so that bicyclists do not have to dismount and walk to access it.
- Locate bicycle parking in proximity to station entrances wherever possible.

Place Connecting Bus Stops in Suitable Locations:

- Bus stops should be placed in suitable locations that make walking to the station short and safe.
- Bus stops should be located to minimize walking distances to station entrances and should avoid the need to cross roadways, particularly busy arterials. Where a roadway must be crossed, the bus stop should be located adjacent to a marked crosswalk.
- Bus stops should be immediately visible upon exiting the station.
- Bus stops should be located where they will not block crosswalks, obstruct traffic signals, or be obscured from motorists, bicyclists, and pedestrians.
- On-street bus stops are preferable unless off-street facilities are necessary to effectively serve multiple routes.
- Buses should be able to reach connecting stops via congestion-free routes, including dedicated lanes and signal priority where practical.

Provide Attractive Feeder Bus Service:

- Connecting bus service must be frequent and reliable.
- The bus route structure should be direct and clear. Route deviations should be avoided.
- There should be minimal and predictable transfer wait times.
- Providing real-time information about transit arrival times helps alleviate passenger uncertainty of bus arrivals and reduces the wait time burden.
- Connecting bus services should operate at relatively frequent headways. Headways generally should not exceed 10 to 15 minutes in the peak hour, and should not exceed 20 minutes in the off-peak.

Institute a Safe, Comfortable, and Convenient Environment for Intermodal Transfers:

- Connecting transit service at stations should be prioritized.
- Bus drop-offs and boardings should be located as close as possible to station entrances.
- The paths between bus passenger loading and unloading areas and the station entrance should be as short as possible.
- Stops should be well-marked to indicate which transit services stop at which locations.
- Real-time passenger information and easily understandable maps and schedules should be provided for connecting bus services.
- Weather protection, seating, lighting, and trash cans should be provided in bus waiting areas.
- Bus shelter design should enable waiting passengers to easily see oncoming vehicles.

Kingshighway Station

Establishment of Station Area

As an initial step in our evaluations, station area boundaries were established on the basis of transit shed thresholds. A transit shed illustrates the distance limits that potential transit riders are typically willing to walk to a station. A radius of ½ mile around the station, which is equivalent to a 10-minute walk, is a common transit shed boundary. The 5-minute walk radius is frequently referenced as well because a higher level of ridership is typically achieved from within that distance.

The actual transit sheds applied for this analysis account for adjacent stations along the proposed rail line, proximity of major destinations, and the anticipated attractiveness of the walking environment around the station. These elements help define the geographic limits of the station's ridership capture. For example, the proximity of the Union Blvd station reduces the transit shed to the west. The transit shed limits to the north and southeast were marginally extended beyond the 10-minute threshold because parks provide for favorable walking conditions. The transit shed areas are illustrated in **Figure 1** below.

Figure 1: Kingshighway Station Transit Shed Boundaries

The Kingshighway Station area contains a population of low income, transit-dependent residents and many have no access to a vehicle. Capture rates for estimating transit users from the population and employment totals within the thresholds were developed with those characteristics in mind. A capture rate of 15 to 20 percent was deemed appropriate for the ¼ mile transit shed and a rate of 10 to 15 percent was selected for beyond ¼ mile up to ½ mile. This approach results in a ridership projection of 650 to 925 daily boardings based on existing land uses.

Existing Conditions

Natural Bridge Avenue and Kingshighway converge to form an important crossroads within north St. Louis City. As a result, the area is particularly automobile-oriented with a number of gas stations, auto repair businesses, and fast food restaurants in the vicinity. The intersection serves as a gateway between mostly residential areas to the south and east and more industrial and commercial areas along I-70 to the north and west.

Vehicular

Natural Bridge Avenue is a major east-west link maintained by MoDOT. It provides 2 lanes of travel in each direction plus a two-way left-turn lane and wide shoulders. It carries approximately 22,000 vehicles per day. Due to the proximity of a parallel interstate corridor (I-70), Natural Bridge attracts few longer distance trips and instead tends to serve local traffic either making short trips or connecting to other routes for more regional travel. Field observations revealed aggressive driving through the intersection with Kingshighway.

Kingshighway Boulevard is a vital City-maintained arterial connecting the City's central corridor (concentrated along I-64) to I-70 and ultimately West Florissant Avenue. Kingshighway has 3 lanes of travel in each direction separated by a wide landscaped median, which accommodates dedicated left-turn lanes at major intersections. It serves major destinations such as the Barnes-Jewish Hospital campus, the Central West End neighborhood, and Forest Park. Unlike Natural Bridge Ave, there is not a parallel limited-access roadway. Consequently, Kingshighway is an important route for commuters in addition to local traffic. Field observations revealed aggressive driving through the intersection with Natural Bridge.

Most local streets in the station area provide for 1 lane of travel in one or both directions with on-street parking on one or both sides of the street. The limited street widths and friction associated with on-street parking generally discourage cut-thru traffic and high traffic speeds, so they are appropriately configured for attracting pedestrian trips and cycling. Traffic calming measures could be sought to inhibit traffic flow for problematic locations.

Pedestrian

There is substantial pedestrian activity in the station area, particularly at the intersection of Natural Bridge and Kingshighway, which is a hub for transit users from the surrounding neighborhoods. Pedestrian accommodations in the area are varied. While there are sidewalks

along most streets, many are in poor condition and are not ADA-compliant. Moreover, the discontinuous nature of the local street grid hinders direct pedestrian routes. Along Natural Bridge Ave, the density of commercial driveways is hazardous for pedestrians, and the many commercial parking areas are also not favorable for pedestrian travel. The intersection of Natural Bridge and Kingshighway has crosswalks but not pedestrian signals.

Bicycle

There are wide parking lanes on each side of Natural Bridge Avenue that were previously striped as a bike lane. While Natural Bridge remains a designated bike route on the Gateway Bike Plan, there are few signs and markings along the corridor itself to reinforce this designation. This bike route ultimately connects to the North Riverfront Trail and intersects the many north-south bike routes throughout north City. Bicycle activity was observed in the area, but it was more widespread and not concentrated within the outside lanes of Natural Bridge. Additionally, the interrupted street layout of the station area tends to lengthen bike trips.

Transit

Two of the busier bus lines in the region pass through the intersection of Natural Bridge and Kingshighway. It was observed that bus activity at the busy intersection is occasionally impeded by traffic congestion, queues, and right-turn maneuvers. Running east-west along Natural Bridge, the #4 bus serves 2,794 total weekday riders at 30-minute headways during normal operating hours. Running north-south along Kingshighway, the #95 serves 4,551 total weekday riders at 20-minute headways during normal operating hours. The #95 links with MetroLink at the Central West End Station, which offers connections to Clayton, Downtown, and Illinois as well as transfers to 8 other bus routes.

Parking

Parking appears to be sufficient to fulfill existing needs. Most businesses provide off-street parking that more than satisfies demands, so they do not rely upon on-street parking. The large off-street parking fields impede land use densification and foster an environment that is not conducive to transit or neighborhood cohesiveness. On-street parking in residential areas is generally ample for the limited density of housing that currently exists within the station area.

Analysis of Preliminary Station Area Plans

The station area plan alternatives were evaluated to provide input as to how the alternatives would impact the transportation system. This evaluation identified the implications of various development intensities and land use mixtures upon traffic, transit, and parking demands. These relationships were quantified using data provided by the Institute of Transportation Engineers (ITE) in Trip Generation and Parking Generation. These resources contain statistics from nationwide studies identifying the trip and parking characteristics of various land uses.

Our methodology emphasized the urban, transit-oriented nature of the future station areas. For select land uses, these characteristics were inherent to the data available from ITE. In many instances, it was necessary to apply manual adjustments to account for characteristics such as internal trip capture within mixed-use developments, reduced auto ownership within transit-oriented developments, and neighborhood walkability. The adjustments reflect national research combined with local experiences.

The results of this analysis are summarized in **Table 1** below. Our findings and conclusions are as follows:

- **Alternative 1** – The Neighborhood Center Type 1 alternative would provide a balance of jobs, retail, and residents. However, traffic generated by the development would tax the existing roadway infrastructure and potentially necessitate improvements. Moreover, the incremental light rail ridership could exceed 4,000 daily boardings. This level of ridership may not be accommodated efficiently by the station infrastructure, which proposes only one access point for each platform.

- Alte**rnative 2** – The Business District alternative would contain the most intense land uses and generate the greatest needs for transportation and parking. The magnitude of traffic generation would oversaturate the existing roadway infrastructure, particularly Kingshighway heading north to I-70. Incremental light rail ridership would approach 5,000 daily boardings, which would likely exceed the peak period capacity of the station.

- **Preferred Alternative** – The Neighborhood Center Type 1 preferred alternative would provide a balance of jobs, retail, and residents without exerting excessive pressure on the area transportation system. Ridership at the station would exceed 3,000 daily boardings, which would be within the capacity of the station. Vehicular traffic could be accommodated by the existing infrastructure with only minor upgrades.

Table 1: **Evaluation of Kingshighway Station Area Plan Alternatives**

Alternative	Proposed Development	Mode	Daily Demand	Comments
1 Neighborhood Center Type 1	1,900 units RESIDENTIAL 310,000 sq. ft. RETAIL 1,000,000 sq. ft. OFFICE	Transit Trips	4,174	
		Auto Trips	27,579	2,758 peak hour auto trips
		Parking Spaces	5,654	2,500 from office space
2 Business District	1,000 units RESIDENTIAL 310,000 RETAIL 2,000,000 sq. ft. OFFICE	Transit Trips	4,998	
		Auto Trips	31,381	3,138 peak hour auto trips
		Parking Spaces	6,879	5,000 from office space
Preferred Alternative	1,100 units RESIDENTIAL 258,000 sq. ft. RETAIL 1,000,000 sq. ft. OFFICE	Transit Trips	3,420	
		Auto Trips	21,508	2,151 peak hour auto trips
		Parking Spaces	4,441	2,500 from office space

Preferred Station Area Plan – Specific Modality Recommendations

The following summarizes our analysis and recommendations with regards to the Kingshighway Station.

Pedestrians

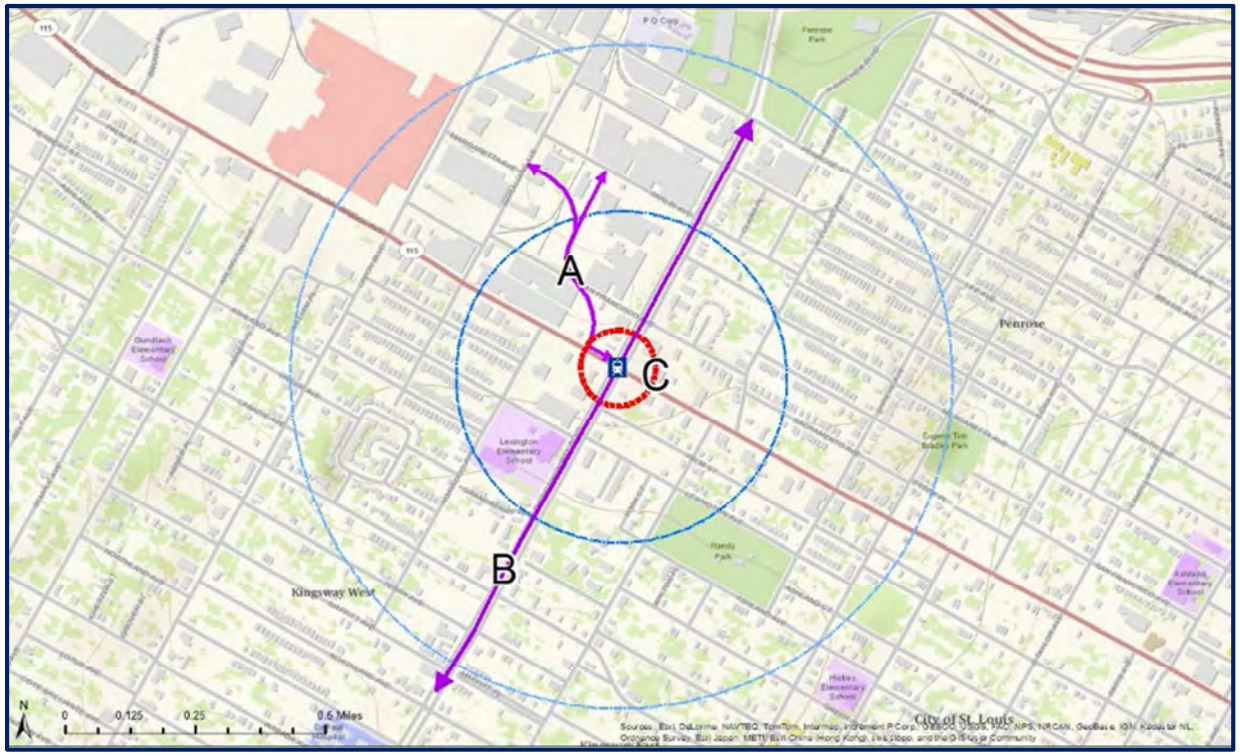

Figure 2: Pedestrian Recommendations

A. ⟷

The proposed commercial developments in the northwest quadrant of the station area should provide direct pedestrian and bike linkages to the station.

Tier 1. Design all sidewalks with an emphasis on maintaining a direct route to the station.

Tier 2. Design a multi-use path through the development that would serve all of the proposed buildings and the station, minimizing the distances in between.

B. ⟷

Streets within the station area do not form a uniform street grid, and the discontinuity tends to lengthen connections between the station and surrounding neighborhoods. Improving access to the station from the north and south along Kingshighway would be advantageous.

Tier 1. Widen sidewalks and construct ADA-compliant ramps at each intersection along Kingshighway within the station area.
Tier 2. Install a multi-use trail for pedestrian and cyclists within the wide, landscaped median of Kingshighway.
Tier 3. Enhance the multi-use path within the median of Kingshighway as a linear park with features oriented to pedestrians such as benches, lighting, and aesthetic treatments.

C.

It was observed that drivers in the area are aggressive, particularly at the intersection of Natural Bridge and Kingshighway. Given their functionality as arterials, traffic calming measures would not be appropriate along either corridor. However, elements to increase drivers' awareness of pedestrians and enhance pedestrian safety are advised.

Tier 1. Install pedestrian countdown signals and restrict right turns on red.
Tier 2. Install colored or textured crosswalks and pedestrian-scale lighting.
Tier 3. Install curb bump-outs and pedestrian refuge areas within the median of Kingshighway.

Bikes

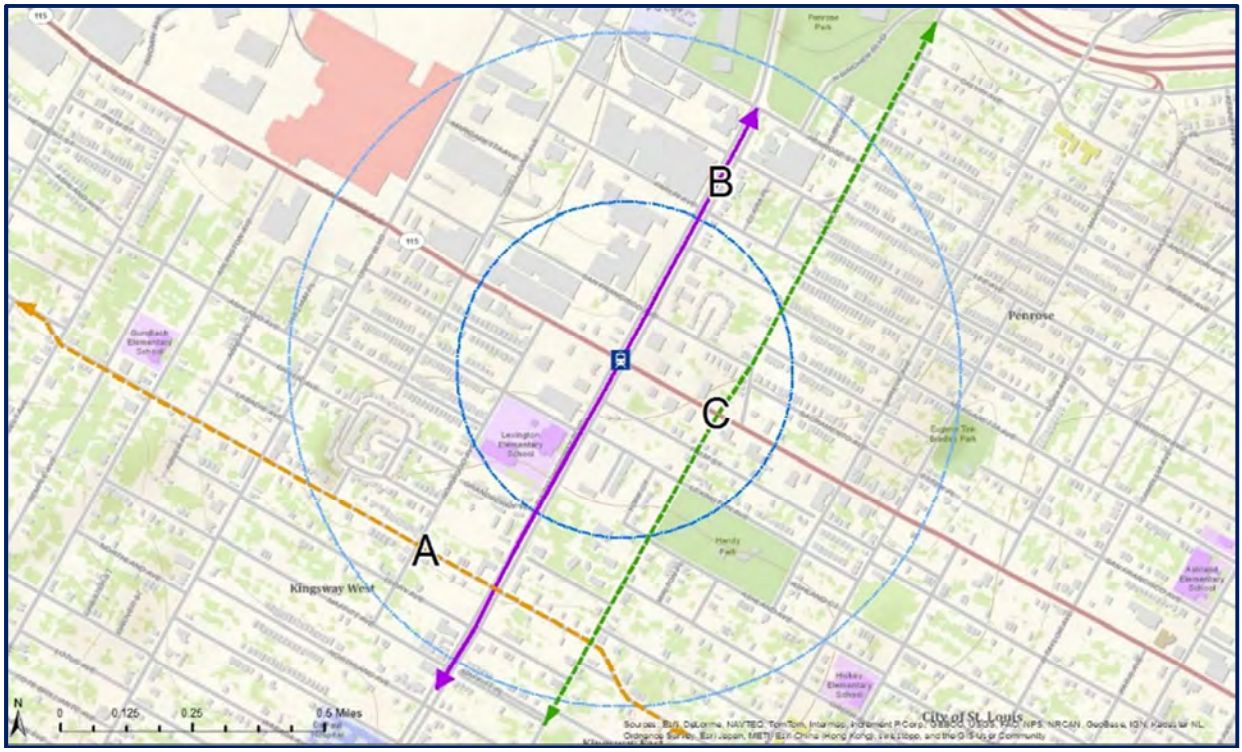

Figure 3: Bicycle Recommendations

A.

Existing east-west bike lanes along Natural Bridge Ave would be displaced by the proposed light rail line and should be relocated to St. Louis Ave at the periphery of the study area approximately ½ mile south of the station. Relocating the lanes to adjacent parallel streets would not restore the same level of connectivity, as most of these corridors are not continuous over long distances. The character of St. Louis Ave would be more conducive to cycling, although its width would constrain the route to share-the-road operations. However, it would facilitate a long, continuous connection to the North Riverfront Trail to the east. Connections to the station could be made via Euclid Ave or the multi-use trail along Kingshighway.

Tier 1. Designate St. Louis Ave as a share-the-road bike route.

Tier 2. Eliminate parking along St. Louis Ave and install dedicated bike lanes.

B.

Streets within the station area do not form a uniform street grid, and the discontinuity tends to lengthen connections between the station and surrounding neighborhoods. Improving access to the station from the north and south along Kingshighway would be advantageous.

Tier 1. Install a multi-use trail for pedestrian and cyclists within the wide, landscaped median of Kingshighway.

Tier 2. Enhance the multi-use path within the median of Kingshighway as a linear park with features oriented to pedestrians such as benches, lighting, and aesthetic treatments.

C.

The north and south legs of Euclid Ave at Natural Bridge Ave are offset and do not align opposite each other. Since Euclid is a designated bike route, realigning the north leg in conjunction with adjacent redevelopments would eliminate the need for cyclists to use Natural Bridge to remain on Euclid when traveling north and south.

Tier 1. Realign the north leg of Euclid Ave at Natural Bridge (in conjunction with development) opposite the south leg.

Transit

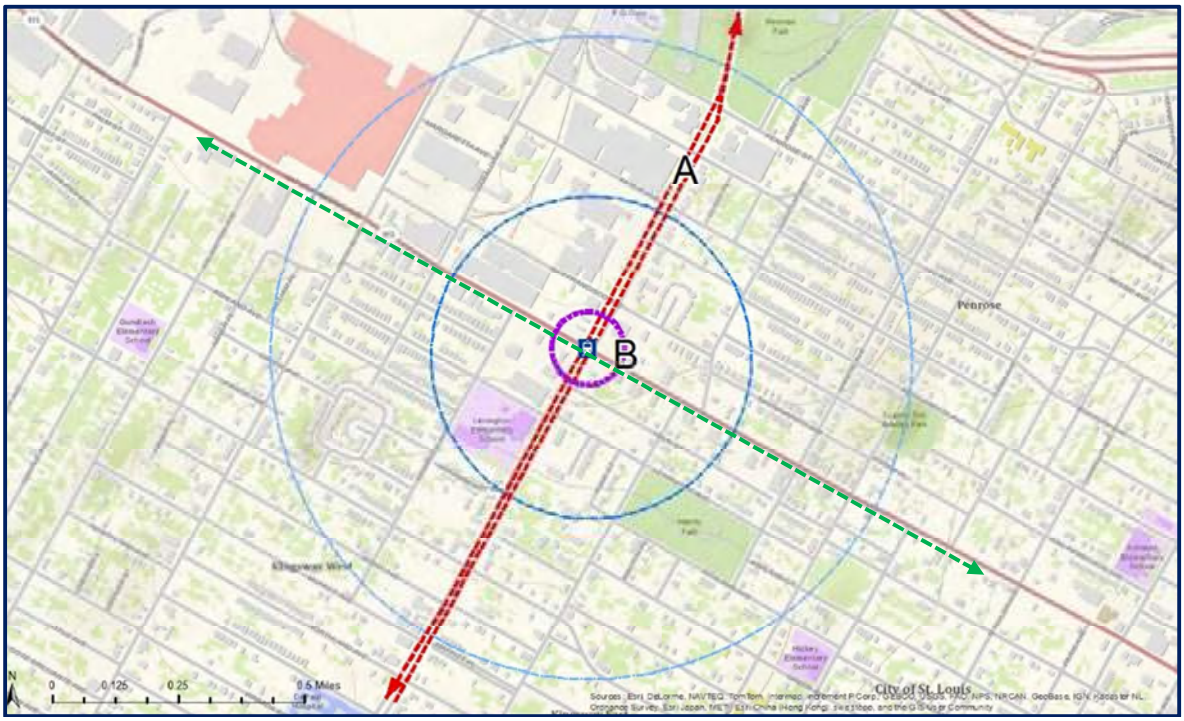

Figure 4: Transit Recommendations

A. ←- - - - - - - - - - - - →

Increase service for the #95 bus that runs along Kingshighway to maximize ridership, encourage more bus to rail trips, and reinforce this station as an important transfer hub for transit riders. This line currently maintains 20-minute headways during normal operating hours.

Tier 1. Increase headways to 15 minutes.

Tier 2. Increase headways to 10 minutes.

B. ←- - - - - - - - - - - - →

The #95 is a major north-south bus route. Implementing transit priority features at the intersection of Natural Bridge Ave and Kingshighway would reduce traffic interference with buses entering and leaving the stop. This would help maintain on-time service and reliability, thereby maximizing scheduled connections between buses and light rail.

Tier 1. Convert the curb lane of Kingshighway at Natural Bridge Ave into a bus only lane. To preserve the existing 4-lane approaches, it may be necessary to relocate the left-turn lane within the landscaped median.

Tier 2. Implement transit signal priority at the intersection in the form of an early "queue jump" signal that would allow buses to proceed before other vehicles providing an opportunity for them to easily rejoin normal traffic lanes.

C. ←- - - - - - - - - - - - - →

The #4 bus running east-west along Natural Bridge Ave would be redundant with the proposed light rail line.

Tier 1. Eliminate the #4 route altogether.

Vehicular Traffic

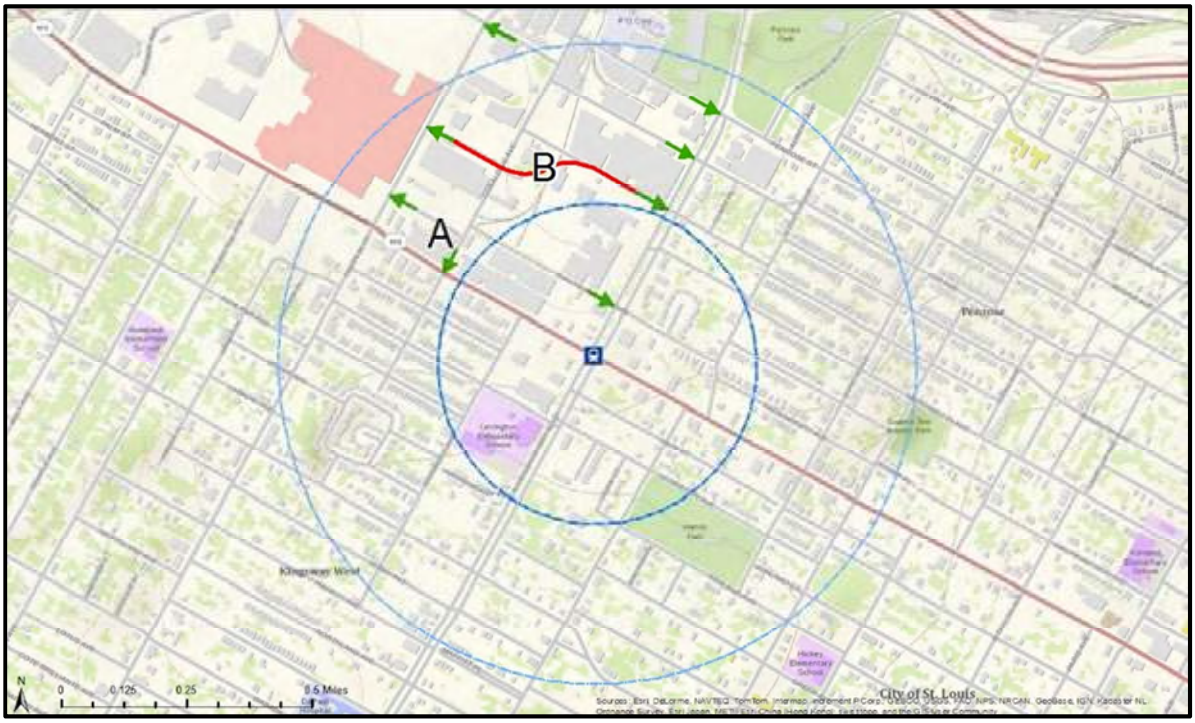

Figure 5: Traffic Recommendations

A. ←————→

The commercial development within the station area's northwest quadrant would generate a sizable amount of vehicular traffic. To maximize traffic dispersion and avoid reliance upon any one particular corridor for access, vehicular connections should be provided to all major adjacent thoroughfares, including Union Blvd, Natural Bridge Ave, and Kingshighway. Union Blvd would be particularly important, given its connection to I-70.

B. ←————→

Currently there is not a direct route between Kingshighway and Union Blvd through the northwest quadrant of the station area. Such a connection would be desirable to maximize wayfinding and connectivity.

Tier 1. Realign Farlin Ave to connect with Margaretta Ave to the west.

C.

Natural Bridge Ave is a heavily traveled state road and should maintain 2 through lanes in each direction plus dedicated left-turn lanes at major intersections to accommodate traffic volumes. Likewise, Kingshighway should maintain 3 through lanes in each direction.

D.

Although outside the station area, some level of improvements would likely be needed at Kingshighway and its interchange with I-70 to accommodate increased traffic volumes. The improvements may include extending or adding dedicated turn lanes, improving signalization, and/or expanding ramps onto or off of the interstate.

Preferred Station Area Plan – Parking Guidelines

Guidelines for providing parking for the proposed development are offered with the goal of accommodating parking needs in an efficient manner, while minimizing the supply of spaces. The proposed uses would generate total demand for approximately 4,450 parking spaces. This calculation reflects the mixed-use, urban character of the station area as well as the light rail station's anticipated impact reducing vehicular trips.

Parking needs associated with infill residential development were assumed to be accommodated on the residential properties themselves (rear-facing garage) or on-street. This amounts to approximately 750 spaces.

While surplus on-street parking capacity could likely accommodate additional development-driven demands, the remaining parking need (3,700 spaces) should be served by dedicated off-street parking facilities. According to Development Strategies, off-street spaces would be necessary for these uses to attract residential and businesses lease rates that are sufficient to sustain development. Moreover, forcing the parking needs of large-scale developments onto streets creates shortages that result in adverse neighborhood impacts, including parking districts and management strategies. The long-term approach for the station area is to avoid the need for on-street parking management.

The amount of the off-street space need (3,700 spaces) could be reduced by the concept of shared parking. Offsetting temporal parking demands for retailers and residents could enable the same space to be shared by both uses. For example, a residential space occupied overnight but vacated during the day when the resident is at work could be used by a retail customer. Shared parking could reduce the parking supply for the mixed-use development at the station by 25 percent. However, the segregation of uses away from the station, particularly the

concentration of office space northwest of the station, would limit opportunities for shared parking elsewhere.

Ultimately, it is recommended that the parking needs of the station area be unregulated. The proposed form-based zoning code will not stipulate minimum parking requirements, as parking needs would likely be particularly dynamic over time as the station area evolves into a transit-oriented neighborhood. Instead, property owners and developers will be given autonomy to decide how much parking to provide. Simultaneously, they should be encouraged by the City to provide as few spaces as they feel are needed.

Cherokee Station

Establishment of Station Area

As an initial step in our evaluations, station area boundaries were established on the basis of transit shed thresholds. A transit shed illustrates the distance limits that potential transit riders are typically willing to walk to a station. A radius of ½ mile around the station, which is equivalent to a 10-minute walk, is a common transit shed boundary. The 5-minute walk radius is frequently referenced as well because a higher level of ridership is typically achieved from within that distance.

The actual transit sheds applied for this analysis account for adjacent stations along the proposed rail line, proximity of major destinations, and the anticipated attractiveness of the walking environment around the station. These elements help define the geographic limits of the station's ridership capture. For example, the ¼ mile transit shed was extended east and west to reflect the tremendous walkability of Cherokee St and the absence of barriers to pedestrian mobility along the corridor. Concurrently, the proximity of adjacent stations (Arsenal and Chippewa) limits the north-south capture area. The transit shed areas are illustrated in **Figure 6** below.

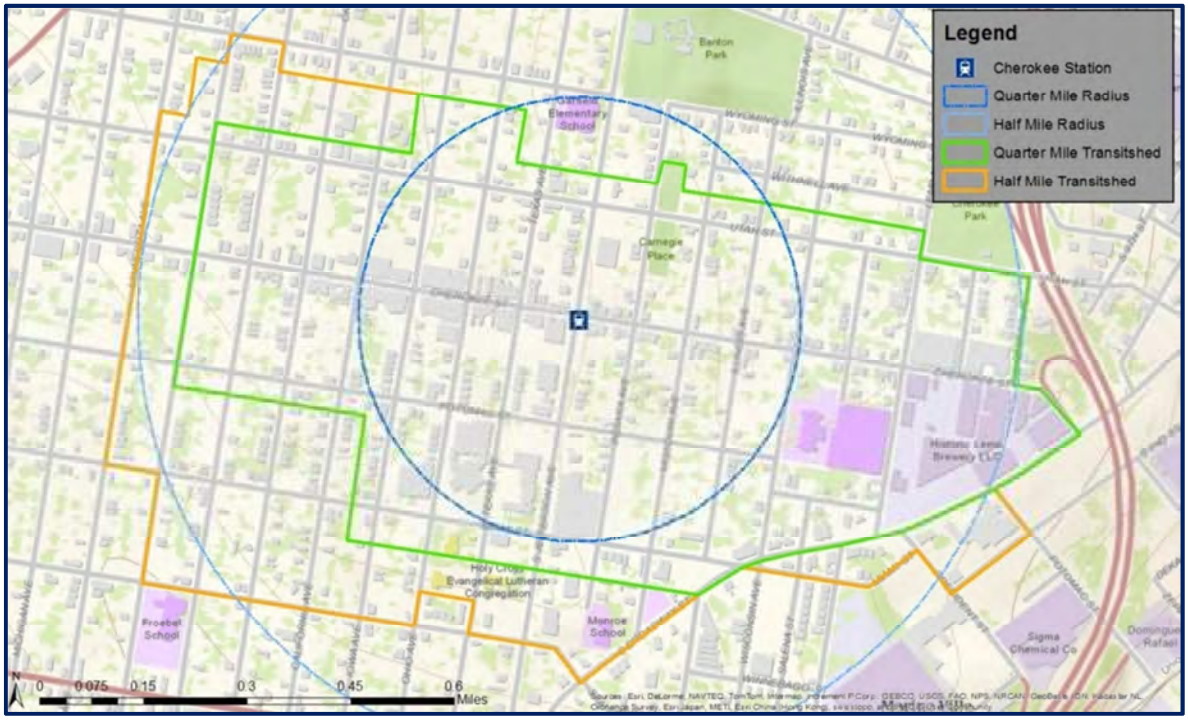

Figure 6: Cherokee Station Transit Shed Boundaries

The station area is particularly compact and contains with an appreciable number of households with access to 1 or no vehicles. Capture rates for estimating transit users from the population and employment totals within the thresholds were developed with those characteristics in mind. A capture rate of 15 to 20 percent was deemed appropriate for the ¼ mile transit shed and a rate of 10 to 15 percent was selected for beyond ¼ mile up to ½ mile. This approach results in a ridership projection of 750 to 1,000 daily boardings based on existing land uses.

Existing Conditions

Cherokee Street and Jefferson Avenue are at the heart of an emerging restaurant, retail, and cultural district. The strong neighborhood fabric, overall walkability, and uniform street layout make the intersection an ideal location for a potential light rail station.

Vehicular

Jefferson Avenue is a minor north-south arterial carrying traffic through the surrounding residential areas. It provides 2 lanes of traffic in each direction plus a two-way left-turn lane and on-street parking. Within the station area, Jefferson primarily serves as a collector and distributor of local traffic. Further north beyond the study area, Jefferson is a major commuter route that connects I-44 and I-64 to major employment centers in the City's Central Corridor.

Cherokee Street is a local collector street that contains an eclectic mix of restaurant and retail businesses. For adjacent neighborhoods, it provides a link to Gravois Ave to the west and I-55 to the east. Cherokee has 1 lane in each direction plus on-street parking on both sides.

Pedestrian

The station area street layout is conducive to walking. The uniform grid, closely-spaced blocks, and neighborhood character of the streets all make for a well-connected pedestrian district. The sidewalks along Cherokee are continuous. To the east of Jefferson, the sidewalk width is somewhat narrow constrained by landscaping and lacking ADA-compliant ramps. To the west of Jefferson, most intersections have ADA-compliant crosswalk ramps and are generally sufficiently wide. Most intersections off of Jefferson Ave operate as 4-way stops, which facilitate pedestrian crossing opportunities and enhance safety. The intersection at Jefferson and Cherokee contains crosswalks and pedestrian signal indications.

Bicycle

Cherokee St has an existing designated bike route that utilizes share-the-road operations. The route connects to north-south bike routes on Broadway to the east and Compton Ave to the west. The quiet neighborhood streets also act as feeders to the bike route along Cherokee.

Transit

Two bus lines serve the station area. The #11 bus runs along Jefferson Ave before turning west on Chippewa Ave. It carries 4,254 weekday riders at 20-minute headways. Major destinations served by this route include the Shrewsbury MetroLink station and Hampton Village Shopping

Center to the west as well as Downtown to the north. The #73 bus runs along Cherokee and carries 2,226 weekday riders at 30-minute headways. It offers connections to Downtown via the Civic Center MetroLink station and South St. Louis County via Lemay Ferry Road.

Parking

There is currently metered on-street parking along Cherokee St and free street parking along Jefferson Ave. There are several municipal lots along Cherokee to accommodate retail and restaurant customers.

Analysis of Preliminary Station Area Plans

The station area plan alternatives were evaluated to provide input as to how the alternatives would impact the transportation system. This evaluation identified the implications of various development intensities and land use mixtures upon traffic, transit, and parking demands. These relationships were quantified using data provided by the Institute of Transportation Engineers (ITE) in Trip Generation and Parking Generation. These resources contain statistics from nationwide studies identifying the trip and parking characteristics of various land uses.

Our methodology emphasized the urban, transit-oriented nature of the future station areas. For select land uses, these characteristics were inherent to the data available from ITE. In many instances, it was necessary to apply manual adjustments to account for characteristics such as internal trip capture within mixed-use developments, reduced auto ownership within transit-oriented developments, and neighborhood walkability. The adjustments reflect national research and local experiences.

The results of this analysis are summarized in **Error! Reference source not found.** below. Our findings and conclusions are as follows:

- **Alternative 1** – The Neighborhood General Type 3 alternative would provide dense housing immediately around the station and within the Lemp site. Transit ridership on the order of 1,300 daily boardings could be generated. Peak hour traffic generation would amount to 700 trips. Since development would be concentrated in two separate locations (at the station and within Lemp), these trips would be geographically dispersed and could be reasonably accommodated by the station area street network with only minor enhancements.

- **Alternative 2** – The Neighborhood Center Type 1 alternative would primarily consist of office space at the Lemp site along with infill residential throughout the station area. Offices tend to generate a higher demand for transportation on a per square foot basis than other uses. A total of 1,200 peak hour auto trips and 2,000 daily light rail boardings would be generated. The concentration of office space at the Lemp site would adversely impact traffic and create the need

for interstate access enhancements at I-55, particularly regarding I-55 to/from the north, which is currently not accessible via the Broadway interchange.

- **Preferred Alternative** – The Neighborhood General Type 3 preferred alternative would balance employment, retail, and residential in a mixed-use environment that would not burden the road system. This mixed-use character of the Lemp site would result in pedestrian trips internal to the development, which would reduce its impact upon adjacent streets and the I-55 interchange. Traffic impacts would be further alleviated by distributing development to multiple areas (adjacent to the station and Lemp).

Table 2: **Evaluation of Cherokee Station Area Plan Alternatives**

Alternative	Proposed Development	Mode	Daily Demand	Comments
1 Neighborhood General Type 3	1,100 RESIDENTIAL UNITS	Transit Trips	1,312	
		Auto Trips	6,894	689 peak hour auto trips
		Parking Spaces	1,484	720 within Lemp site
2 Neighborhood General Type 1	276 RESIDENTIAL UNITS 1,000,000 sq. ft. OFFICE	Transit Trips	1,654	
		Auto Trips	12,474	1,247 peak hour auto trips
		Parking Spaces	3,084	2,115 within Lemp site
Preferred Alternative	650 RESIDENTIAL UNITS 60,000 sq. ft RETAIL 450,000 sq. ft. OFFICE	Transit Trips	1,137	
		Auto Trips	8,358	836 peak hour auto trips
		Parking Spaces	2,017	1,651 within Lemp site

Preferred Station Area Plan – Specific Modality Recommendations

The following summarizes our analysis and recommendations with regards to the Cherokee Station.

Pedestrians

Figure 7: Pedestrian Recommendations

A.

The existing sidewalks along Cherokee St, particularly east of Jefferson Ave, are somewhat limited in width and cannot be widened without impacting building facades or the street width. The existing street width should be retained as it facilitates just 2 lanes of travel and on-street parking along both sides and complements the character of the adjacent businesses. Modifications to these sidewalks should be made to stimulate pedestrian connections between the station and the Lemp mixed-use development.

Tier 1. Resurface sidewalks and construct ADA-compliant ramps at all intersections.

Tier 2. Revisit landscaping, street furniture, and lighting to maximize the travel way afforded by the existing sidewalk width.

B.

Increase drivers' awareness of pedestrians and enhance pedestrian safety at the intersection of Jefferson Ave and Cherokee St.

Tier 1. Install pedestrian countdown signals and restrict right turns on red.

Tier 2. Install colored or textured crosswalks and pedestrian-scale lighting.
Tier 3. Install curb bump-outs to provide refuge for pedestrians and to decrease the effective crossing distance.

C.

Anticipated traffic volumes along Jefferson Ave would enable the corridor to be reduced to 1 through lane in each direction plus dedicated left-turn lanes at major intersections. As a result, there is flexibility to modify the layout of the station and/or widen sidewalk widths along Jefferson Ave.

Tier 1. Widen sidewalks along Jefferson Ave adjacent to the station beyond the 6 feet limit illustrated by the station's conceptual design.

D.

The existing layout of the street grid within the station area is conducive to pedestrian connectivity between the station and surrounding neighborhoods. Care should be taken to ensure adequate sidewalk maintenance and prioritization of crosswalk ramp upgrades to facilitate ADA-compliance.

Bikes

Figure 8: Bike Recommendations

A.

The existing share-the-road bike route along Cherokee St would adequately connect the proposed station with the surrounding neighborhood and Lemp mixed-use development. Additionally, the quiet neighborhood streets in the station area serve as suitable conveyors of bike traffic. Extending the Cherokee St bike route west of Compton could potentially capture even more bike to light rail transfers.

B.

The effective pavement width of Cherokee at Jefferson should be modified to reduce the vehicular space by installing bike boxes, which are painted spaces at intersections where bicyclists can safely wait for a green signal. This would enhance bike safety as well as discourage vehicles from making right-turns-on-red, which should be prohibited as they are generally hazardous to pedestrians and cyclists.

Transit

Figure 9: Transit Recommendations

A.

The #73 bus runs east-west along Cherokee St as a local shuttle penetrating neighborhoods. Increasing service headways on the #73 bus would encourage more bus to light rail transfers and directly link the proposed station to the Lemp mixed-use site. This line currently maintains 30-minute headways during normal operating hours. In order to attract usage of the route as a connecting service to light rail, headways should be increased to at least 15 minutes.

Tier 1. Increase headways to 15 minutes.
Tier 2. Increase headways to 10 minutes.

B.

Currently, the #11 bus line services Chippewa Street west of Jefferson Ave and then Jefferson north of Chippewa. The Jefferson portion of this service would be redundant with the proposed light rail alignment and should be eliminated altogether. The portion of the service along Chippewa would still be useful, and thus it may be appropriate to terminate the #11 at the Chippewa Station, which is one station south of Cherokee. That station could potentially serve as a transit hub for the area, as it also connects with the #40 Broadway bus route.

Vehicular Traffic

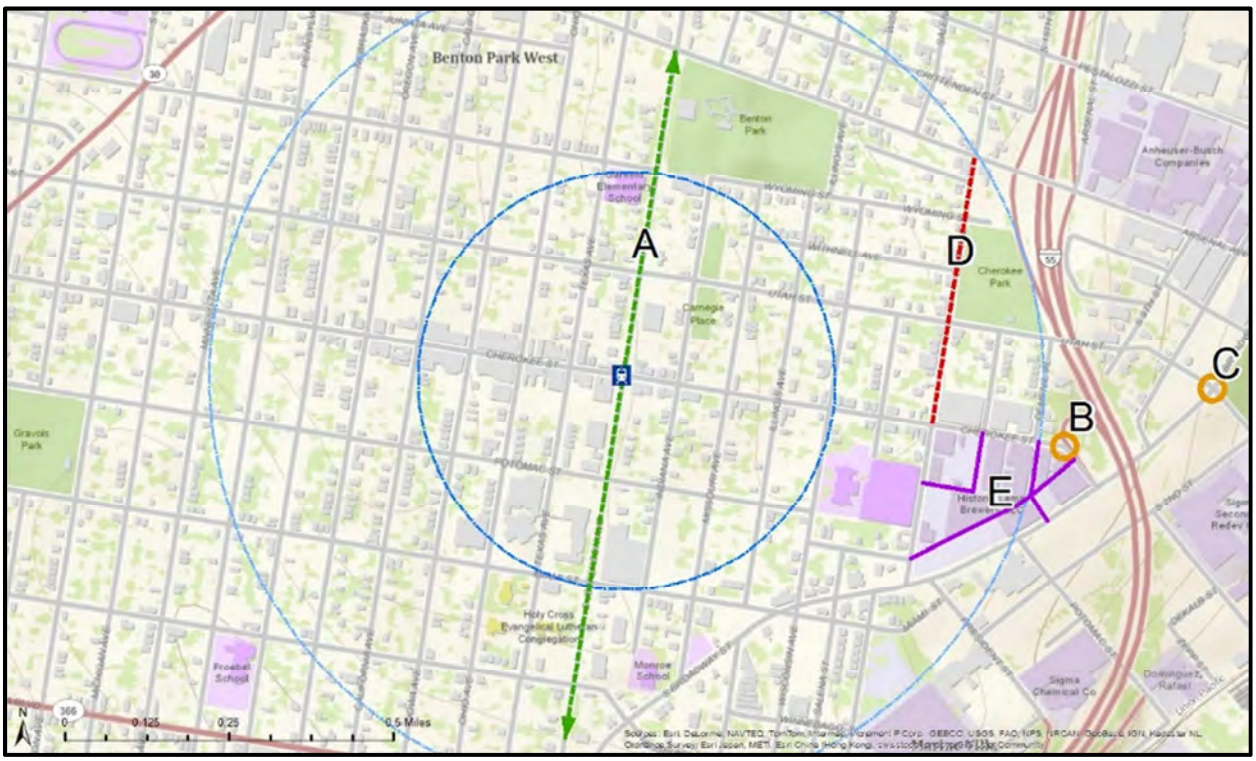

Figure 10: Traffic Recommendations

A. ←- - - - - - - - - - - - →

Existing and anticipated traffic volumes on Jefferson Ave warrant reducing the roadway to 1 through lane in each direction plus dedicated left-turn lanes at major intersections. Reducing streets to 1 lane would eliminate passing maneuvers, which results in more uniform traffic flows and speeds. This, in turn, cultivates safer driver behavior, which leads to fewer crashes and helps encourage pedestrian activity along the corridor.

Tier 1: Implement a "road diet" along Jefferson Ave south of Gravois Ave, whereby Jefferson would be reduced to 1 lane in each direction plus turn lanes.

B.

A roundabout should be provided at Cherokee St and the on-ramp to I-55 southbound. The existing intersection is large and the generous radii promote the flow of traffic onto the interstate at maximum speed. The roundabout would seek to calm traffic at the intersection and delineate the unused interstate right-of-way. It would also serve as a gateway signifying the historic district portion of Cherokee from the portion that connects Broadway to the interstate ramp. The roundabout would also more effectively serve existing traffic, but it would also provide ample reserve capacity to accommodate future increases in traffic that would occur as the adjacent Lemp mixed-use development matures.

Tier 1: Construct a roundabout at Cherokee St and the I-55 southbound on-ramp.

C.

The existing off-ramp from northbound I-55 to Broadway does not accommodate left-turns onto westbound Broadway. As a result, this important interchange does not offer connection from northbound I-55 into the station area. Such a connection would likely be critical to the future success of the Lemp mixed-use redevelopment. It is recommended that a roundabout be provided at Broadway and Utah St to facilitate this connection without costly reconstruction of the ramp. The roundabout would allow traffic from the I-55 off-ramp to make a U-turn on Broadway and proceed southwest into station area.

Tier 2: Construct a roundabout at Broadway and Utah St.

D.

The existing I-55/Broadway interchange only provides ramp connections to/from the south on the interstate. For access to/from I-55 north, motorists would need to travel to Arsenal St. Therefore, Lemp Ave becomes an important traffic conduit between the I-55 north ramps and eastern portions of the station area and, in particular, the Lemp mixed-use redevelopment. Lemp Ave should be treated accordingly and efforts to hinder traffic flow should be avoided.

Tier 1: Restrict traffic flow inhibiting treatments from being implemented along Lemp Ave between Cherokee St and Arsenal St.

E.

Local streets should be extended through the Lemp mixed-use development to better connect the development with adjacent areas and minimize the barrier and superblock effects that are exuded by the complex simply because of its size. The positioning of the historic buildings would readily facilitate an extension of President St through the site east and west. Similarly, it appears that 18th St and Demenil Place could be extended through the redevelopment north and south. The streets should be constructed as multi-modal, complete streets that accommodate parking and emphasize local

connections, particularly for pedestrians and cyclists, while discouraging through vehicular traffic.

Tier 1: Extend President St, 18th St, and Demenil Place as local streets within the Lemp mixed-use development.

Preferred Station Area Plan – Parking Guidelines

Guidelines for providing parking for the proposed development are offered with the goal of accommodating parking needs in an efficient manner, while minimizing the supply of spaces. The proposed uses would generate total demand for approximately 2,000 parking spaces. This calculation reflects the mixed-use, urban character of the station area as well as the light rail station's anticipated impact reducing vehicular trips.

Parking needs associated with infill residential development were assumed to be accommodated on the residential properties themselves (rear-facing garage) or on-street. Similarly, parking needs for the retail both at the station and within the Lemp development could be accommodated on-street. This amounts to approximately 175 spaces.

While surplus on-street parking capacity could likely accommodate additional development-driven demands, the remaining parking need (1,825 spaces) should be served by dedicated off-street parking facilities. According to Development Strategies, off-street spaces would be necessary for these uses to attract residential and businesses lease rates that are sufficient to sustain development. Moreover, forcing the parking needs of large-scale developments onto streets creates shortages that result in adverse neighborhood impacts, including parking districts and management strategies. The long-term approach for the station area is to avoid the need for on-street parking management.

The amount of the off-street space need (1,825 spaces) could be reduced by the concept of shared parking. Offsetting temporal parking demands for businesses and residents could enable the same space to be shared by both uses. For example, a residential space occupied overnight but vacated during the day when the resident is at work could be used by an office worker. The sizable residential and office components of the Lemp development would offer the greatest opportunity for shared parking. Shared parking could reduce the off-street parking needs of the Lemp development by up to 25 percent.

Ultimately, it is recommended that the parking needs of the station area be unregulated. The proposed form-based zoning code will not stipulate minimum parking requirements, as parking needs would likely be particularly dynamic over time as the station area evolves into a transit-oriented neighborhood. Instead, property owners and developers will be given autonomy to decide how much parking to provide. Simultaneously, they should be encouraged by the City to provide as few spaces as they feel are needed.

Appendix

Cherokee Station - Alternative 1

Daily Totals	
Transit Trips	**1,312**
Auto Trips	**6,894**
Parking Demand	**1,484**

Residential

1,122 Total Units
- 246 New Units - Apartments At Station
- 876 Renovated Units
  - (600 Apartments in Lemp Development)
  - (276 Infill Single-Family Detached Homes)

Transportation Demand

ITE Land Use Code: Single Family Detached - 210: 9.5 daily trips per unit
Apartment - 220: 6.6 daily trips per unit

Description	Units	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Apartments At Station (Mixed-Use Development)	246	6.6	1624	20%	325	1299	130
Renovated Apartments in Lemp Development	600	6.6	3960	15%	594	3366	337
Renovated Single-Family Detached Homes Infill	276	9.5	2622	15%	393	2229	223
				Totals	**1312**	**6894**	**689**

Parking Demand

ITE Land Use Code: Single-Family Detached Within 1/3 Mile of Light Rail Station - 210: 1.7 parked vehicles/unit
Mid-Rise Apartment - 221: 1.2 parked vehicles/unit

Description	Units	Rate	Parking Spaces Needed
Apartments At Station (Mixed-Use Development)	246	1.2	**295**
Renovated Apartments in Lemp Development	600	1.2	**720**
Renovated Single-Family Detached Homes Infill	276	1.7	**469**

Cherokee Station - Alternative 2

Daily Totals	
Transit Trips	**1,654**
Auto Trips	**12,474**
Parking Demand	**3,084**

Residential

276 Renovated Single-Family Detached Homes Infill

Transportation Demand

ITE Land Use Code Single Family Detached - 210: 9.5 daily trips per unit

Description	Units	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Renovated Single-Family Detached Homes Infill	276	9.5	2622	15%	393	2229	223
				Totals	**393**	**2229**	**223**

Parking Demand

ITE Land Use Code Single-Family Detached Within 1/3 Mile of Light Rail Station - 210: 1.7 parked vehicles/unit

Description	Units	Rate	Parking Spaces Needed
Renovated Single-Family Detached Homes Infill	276	1.7	**469**

Office

1,046,000 sq. ft. Total

200,000 sq. ft. New Office Space

846,000 sq. ft. Renovated in Lemp Development

Transportation Demand

ITE Land Use Code General Office - 710: 11 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
New Office Space	200,000	11	2200	15%	330	1870	187
Renovated Office Space in Lemp Development	846,000	11	9306	10%	931	8375	838
				Totals	**1261**	**10245**	**1025**

Parking Demand

ITE Land Use Code General Office - 701: 3 vehicles/1000 sq ft in an urban setting reduced to 2.5 due to station proximity

Description	Sq. Ft.	Rate	Parking Spaces Needed
New Office Space	200,000	2.5	**500**
Renovated Office Space in Lemp Development	846,000	2.5	**2115**

Cherokee Station - Preferred Alternative

Daily Totals	
Transit Trips	**1,137**
Auto Trips	**8,358**
Parking Demand	**2,017**

Residential

650 Total Units
200 New Units - Apartments At Station
450 Renovated Units
(400 Apartments in Lemp Development)
(50 Infill Single-Family Detached Homes)

Transportation Demand

ITE Land Use Code Single Family Detached - 210: 9.5 daily trips per unit
Apartment - 220: 6.6 daily trips per unit

Description	Units	Rate	Internal Capture	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Renovated Apartments in Lemp Development	400	6.6	15%	2244	15%	337	1907	191
Renovated Single-Family Detached Homes Infill	50	9.5	0%	475	15%	71	404	40
Apartments At Station (Mixed-Use Development)	200	6.6	0%	1320	20%	264	1056	106
					Totals	**672**	**3367**	**337**

Parking Demand

ITE Land Use Code Single Family Detached within 1/3 mi of light rail - 210: 1.7 parked vehicles/unit
Mid-Rise Apartment - 221: 1.2 parked vehicles/unit

Description	Units	Rate	Parking Spaces Needed
Renovated Apartments in Lemp Development	400	1.2	**480**
Single-Family Detached Units Within 1/3 mi of Station	50	1.7	**85**
Apartments At Station (Mixed-Use Development)	200	1.2	**240**

Office

450,000 sq. ft. Renovated in Lemp Development

Transportation Demand

ITE Land Use Code General Office - 710: 11 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	Internal Capture	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Renovated Office Space in Lemp Development	450,000	11	15%	4208	10%	421	3787	379
					Totals	**421**	**3787**	**379**

Parking Demand

ITE Land Use Code General Office - 701: 3 vehicles/1000 sq ft in an urban setting reduced to 2.5 due to station proximity

Description	Sq. Ft.	Rate	Parking Spaces Needed
Renovated Office Space in Lemp Development	450,000	2.5	**1125**

Retail

60,000 sq. ft. Total
30,000 sq. ft. Renovated in Lemp Development
30,000 sq. ft. New Retail Space At Station

Transportation Demand

ITE Land Use Code Shopping Center - 820: 42.7 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	Internal Capture	External Trips	Pedestrian Trip Rate	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Renovated Retail in Lemp Development	30,000	42.7	30%	897	25%	5%	45	628	63
New Retail at Station	30,000	42.7	0%	1281	50%	5%	64	576	58
						Totals	**45**	**1204**	**120**

Parking Demand

ITE Land Use Code Shopping Center - 820: 3.2 vehicles/1000 sq ft reduced for pedestrian and transit trips

Description	Sq. Ft.	Rate	Parking Spaces Needed
Renovated Retail in Lemp Development	30,000	1.5	**45**
New Retail at Station	30,000	1.4	**42**

Kingshighway Station - Alternative 1

Daily Totals	
Transit Trips	**4,174**
Auto Trips	**27,579**
Parking Demand	**5,654**

Residential

1,900 Total Units
1,600 New Units
300 Renovated Units

Transportation Demand

ITE Land Use Code: Single-Family Detached - 210: 9.5 daily trips per unit
Apartment - 220: 6.6 daily trips per unit

Description	Units	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Single-Family Detached Units Within 1/4 mi of Station	250	9.5	2375	15%	356	2019	202
Single-Family Detached Units Within 1/2 mi of Station	300	9.5	2850	10%	285	2565	257
Apartments Within 1/4 mi of Station	1000	6.6	6600	15%	990	5610	561
Apartments Within 1/2 mi of Station	350	6.6	2310	10%	231	2079	208
				Total	**1862**	**12273**	**1227**

Parking Demand

ITE Land Use Code: Single Family Detached within 1/3 mi of light rail - 210: 1.7 parked vehicles/unit
Mid-Rise Apartment - 221: 1.2 parked vehicles/unit

Description	Units	Rate	Parking Spaces Required
Single-Family Detached Units Within 1/3 mi of Station	400	1.7	**680**
Single-Family Detached Units Beyond 1/3 mi of Station	300	2	**600**
Mid-Rise Apartments	1200	1.2	**1440**

Office

1,000,000 sq. ft. Total

Transportation Demand

ITE Land Use Code: General Office - 710: 11 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
New and Renovated Office Space	1,000,000	11	11,000	15%	1650	9350	935
				Total	**1650**	**9350**	**935**

Parking Demand

ITE Land Use Code: General Office - 701: 3 vehicles/1000 sq ft in an urban setting reduced to 2.5 due to station proximity

Description	Sq. Ft.	Rate	Parking Spaces Required
New and Renovated Office Space	1,000,000	2.5	**2500**

Retail

310,000 sq. ft. Total

Transportation Demand

ITE Land Use Code: Shopping Center - 820: 42.7 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	External Trips	Pedestrian Trip Rate	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
New and Renovated Retail Space	310,000	42.7	13237	50%	5%	662	5957	596
					Total	**662**	**5957**	**596**

Parking Demand

ITE Land Use Code: Shopping Center - 820: 3.2 vehicles/1000 sq ft reduced for pedestrian and transit trips

Description	Sq. Ft.	Rate	Parking Spaces Required
New and Renovated Retail Space	310,000	1.4	**434**

Kingshighway Station - Alternative 2

Daily Totals	
Transit Trips	**4,998**
Auto Trips	**31,381**
Parking Demand	**6,879**

Residential

1,000 Total Units
700 New Units
300 Renovated Units

Transportation Demand

ITE Land Use Code: Single Family Detached - 210: 9.5 daily trips per unit
Apartment - 220: 6.6 daily trips per unit

Description	Units	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Single-Family Detached Units Within 1/4 mi of Station	200	9.5	1900	15%	285	1615	162
Single-Family Detached Units Within 1/2 mi of Station	200	9.5	1900	10%	190	1710	171
Apartments Within 1/4 mi of Station	500	6.6	3300	15%	495	2805	281
Apartments Within 1/2 mi of Station	100	6.6	660	10%	66	594	59
				Total	**1036**	**6724**	**672**

Parking Demand

ITE Land Use Code: Single Family Detached within 1/3 mi of light rail - 210: 1.7 parked vehicles/unit
Single Family Detached greater than 1/3 mi of light rail - 210: 2.0 parked vehicles/unit
Mid-Rise Apartment - 221: 1.2 parked vehicles/unit

Description	Units	Rate	Parking Spaces Required
Single-Family Detached Units Within 1/3 mi of Station	250	1.7	**425**
Single-Family Detached Units Beyond 1/3 mi of Station	150	2	**300**
Mid-Rise Apartments	600	1.2	**720**

Office

2,000,000 sq. ft. Total

Transportation Demand

ITE Land Use Code: General Office - 710: 11 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
New and Renovated Office Space	2,000,000	11	22000	15%	3300	18700	1870
				Total	**3300**	**18700**	**1870**

Parking Demand

ITE Land Use Code: General Office - 701: 3 vehicles/1000 sq ft in an urban setting reduced to 2.5 due to station proximity

Description	Sq. Ft.	Rate	Parking Spaces Required
New and Renovated Office Space	2,000,000	2.5	**5000**

Retail

310,000 sq. ft. Total

Transportation Demand

ITE Land Use Code: Shopping Center - 820: 42.7 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	External Trips	Pedestrian Trip Rate	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
New and Renovated Retail Space	310,000	42.7	13237	50%	5%	662	5957	596
					Total	**662**	**5957**	**596**

Parking Demand

ITE Land Use Code: Shopping Center - 820: 3.2 vehicles/1000 sq ft reduced for pedestrian and transit trips

Description	Sq. Ft.	Rate	Parking Spaces Required
New and Renovated Retail Space	310,000	1.4	**434**

Kingshighway Station - Preferred Alternative

Daily Totals	
Transit Trips	**3,420**
Auto Trips	**21,508**
Parking Demand	**4,441**

Residential

1,100 Total Units
700 New Units
400 Renovated Units

Transportation Demand

ITE Land Use Code Single Family Detached - 210: 9.5 daily trips per unit
Apartment - 220: 6.6 daily trips per unit

Description	Units	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
Single-Family Detached Units Within 1/4 mi of Station	100	9.5	950	15%	143	808	81
Single-Family Detached Units Within 1/2 mi of Station	300	9.5	2850	10%	285	2565	257
Mid-Rise Apartments at Station	400	6.6	2640	20%	528	2112	211
Apartments Within 1/4 mi of Station	200	6.6	1320	15%	198	1122	112
Apartments Within 1/2 mi of Station	100	6.6	660	10%	66	594	59
				Total	**1220**	**7201**	**720**

Parking Demand

ITE Land Use Code Single Family Detached within 1/3 mi of light rail - 210: 1.7 parked vehicles/unit
Single Family Detached greater than 1/3 mi of light rail - 210: 2.0 parked vehicles/unit
Mid-Rise Apartment - 221: 1.2 parked vehicles/unit

Description	Units	Rate	Parking Spaces Required
Single-Family Detached Units Within 1/3 mi of Station	200	1.7	**340**
Single-Family Detached Units Beyond 1/3 mi of Station	200	2	**400**
Mid-Rise Apartments	700	1.2	**840**

Office

1,000,000 sq. ft. Total

Transportation Demand

ITE Land Use Code General Office - 710: 11 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	External Trips	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
New and Renovated Office Space	1,000,000	11	11000	15%	1650	9350	935
				Total	**1650**	**9350**	**935**

Parking Demand

ITE Land Use Code General Office - 701: 3 vehicles/1000 sq ft in an urban setting reduced to 2.5 due to station proximity

Description	Sq. Ft.	Rate	Parking Spaces Required
New and Renovated Office Space	1,000,000	2.5	**2500**

Retail

258,000 sq. ft. Total

Transportation Demand

ITE Land Use Code Shopping Center - 820: 42.7 daily trips/1000 sq ft

Description	Sq. Ft.	Rate	External Trips	Pedestrian Trip Rate	Transit Capture	Daily Transit Trips	Daily Auto Trips	Peak Hour Auto Trips
New and Renovated Retail Space	258,000	42.7	11017	50%	5%	551	4957	496
					Total	**551**	**4957**	**496**

Parking Demand

ITE Land Use Code Shopping Center - 820: 3.2 vehicles/1000 sq ft reduced for pedestrian and transit trips

Description	Sq. Ft.	Rate	Parking Spaces Required
New and Renovated Retail Space	258,000	1.4	**361**

Civil, Sustainability & Environmental Planning:
M3 Engineering Group

Transportation Oriented Development
Station Area Planning
Stormwater and Environmental Planning

Cherokee Station/Kingshighway Station

St. Louis Development Corporation

June 27, 2013

Prepared by ENGINEERING GROUP P.C.

for H3 Studio

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Estimated Cost of Construction for Stormwater and Environmental Planning A-18

EXECUTIVE SUMMARY

The purpose of this report is to describe the potential impacts to stormwater quantity and quality resulting from proposed Transit Oriented Development (TOD) near the proposed Cherokee and Kingshighway Stations. The report also includes the steps required to mitigate the impacts, primarily through reducing stormwater runoff.

Both Cherokee and Kingshighway TOD areas operate using combined sewer systems located within the Bissell Watershed, which discharges directly to the Mississippi River. Both areas are highly developed and have a high degree of impervious surface. Examination of MSD records indicates that there is a history of basement backup complaints in both areas, suggesting a combined sewer system that lacks sufficient capacity to carry heavy rainfall events.

Stormwater permitting for this project will be administered by the Metropolitan St. Louis Sewer District (MSD). All projects submitted to MSD must be reviewed to determine if stormwater quantity and/or quality management will be required. Regardless of whether a proposed development increases runoff, it is MSD's policy to require on-site storage for development in areas where the downstream combined sewer system lacks capacity. Therefore, the proposed development in both Cherokee and Kingshighway TOD areas will require water quality and quantity storage.

Best Management Practices (BMPs) control stormwater runoff and pollution by introducing a treatment method or technique to the project site. Some BMPs allow infiltration into the soil, some store runoff to reduce hydraulic impact on receiving sewers, and some do both. There are many types of BMPs, but preferred BMPs for the TOD project are bioretention, permeable pavement, rainwater harvesting, green roofs, disconnection and buffer strips. Calculations indicate that approximately 20% of each site should be set aside for storage and other BMPs. Based on broad assumptions regarding the total extent of development and BMP construction, the estimated cost to build BMPs is $3.6M in the Cherokee TOD area and$3.5M in the Kingshighway TOD area.

For development projects located within the Bissell Watershed, which includes both Cherokee and Kingshighway TOD areas, MSD is offering a program to help with funding for new BMPs. This program is part of MSD's effort to satisfy the terms of the Federal Consent Decree that was negotiated with the EPA in 2012. MSD's *Green Infrastructure Program Financial Partnering for Early Action Projects* is part of MSD's goal of spending $100M for green infrastructure in watersheds that discharge to the Mississippi River.

1.0 INTRODUCTION

1.1 Purpose of the Report

The purpose of this report is to describe the potential impacts to stormwater quantity and quality resulting from proposed Transit Oriented Development (TOD) near the proposed Cherokee and Kingshighway Stations. The report also includes the steps required to mitigate the impacts, primarily through reducing stormwater runoff.

1.2 Stormwater Runoff Control Objectives

There are several reasons to reduce stormwater runoff from urban sites, including:

- Reduce the pollutants that enter waterway systems
- Reduce the cost of building and maintaining public stormwater infrastructure
- Reduce the stormwater volume contributing to flooding
- Restoration of aquatic habitat
- Improve groundwater recharge
- Enhance neighborhood aesthetics

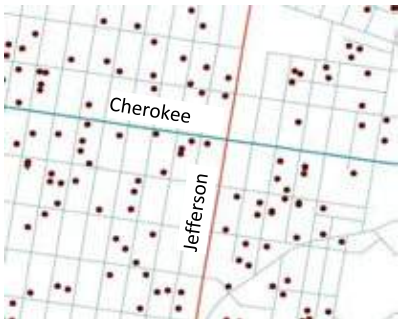
In general, the practices that can help achieve the goal of stormwater runoff reduction include:

- Minimize land disturbance
- Preserve and recreate natural landscape features
- Reduce impervious cover
- Disconnect direct stormwater paths from enclosed piping systems
- Provide offline storage
- Provide detention and infiltration opportunities

Techniques that can help achieve a reduction in stormwater runoff are referred to as Best Management Practices (BMPs). Several BMPS are described later in this report.

2.0 EXISTING CONDITIONS

The MetroLink station proposed at the Cherokee location is in the Mississippi Watershed, which is a sub watershed to the Bissell Watershed. The MetroLink station proposed at the Kingshighway location is in the Harlem Watershed, which is a sub watershed to the Bissell Watershed.

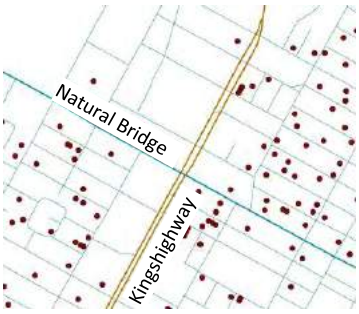


MSD Basement Backup Complaints Indicate Combined Sewer Capacity Issues at Cherokee and Jefferson

2.1 Surface Conditions

Cherokee - This project area defined by the ½ mile Transit Shed has a percent impervious of 63.8%. This level of imperviousness is typical of highly developed and dense urban areas. Stormwater runoff from urban surfaces (parking lots, streets, etc.) carries pollutants such as oil, grease and heavy metals. Examination of MSD records indicates that there is a history of basement backup complaints in the area.

Kingshighway - This project area defined by the ½ mile Transit Shed has a percent impervious of 54%. This level of imperviousness is typical of highly developed and dense urban areas. Stormwater runoff from urban surfaces (parking lots, streets, etc.) carries pollutants such as oil, grease and heavy metals. This TOD is located in the Harlem Subwatershed, which has a history of flooding in certain portions of the watershed. MSD is planning to spend $28M on a 9 acre detention basin in the Harlem subwatershed east of the proposed Kingshighway Station to try to address a flooding situation in the Hebert area, upstream from the TOD. Examination of MSD records indicates that there is a history of basement backup complaints in the area.



MSD Basement Backup Complaints Indicate Combined Sewer Capacity Issues at Kingshighway and Natural

2.2 Subsurface Conditions

Cherokee - Stormwater runoff is captured by inlets and is directed to an enclosed combined sewer system (carries both storm and sanitary flow) that heads eastward toward the Mississippi River. Runoff from buildings typically flows directly into the combined system through downspouts or roof drains. During dry weather (no rainfall), the sanitary flow is intercepted and carried to a wastewater treatment plant. During wet weather (rainfall), some of the combined storm and sanitary flow is intercepted, while the excess is discharged directly to the Mississippi River. Pervious surfaces, such as grassy areas, infiltrate some of the rainfall, while excess runs off into the combined sewer system. Based on a review of flooding complaint records, it appears that there are downstream sewer capacity issues in the area of the proposed TOD.

Kingshighway - Stormwater runoff is captured by inlets and is directed to an enclosed combined sewer system (carries both storm and sanitary flow) that heads eastward toward the Mississippi River. Runoff from buildings typically flows directly into the combined system through downspouts or roof drains. During dry weather (no rainfall), the sanitary flow is intercepted and carried to a wastewater treatment plant. During wet weather (rainfall), some of the combined storm and sanitary flow is intercepted, while the excess is discharged directly to the Mississippi River. Pervious surfaces, such as grassy areas, in filtrate some of the rainfall, while excess runs off into the co mbined sewer system. Based on a review of flooding complaint records, it appears that there are downstream sewer capacity issues in the area of the proposed TOD.

3.0 STORMWATER REGULATORY ISSUES

3.1 Permitting Requirements

Stormwater permitting for this project will be administered by the Metropolitan St. Louis Sewer District (MSD). All projects submitted to MSD must be reviewed to determine if stormwater quantity and/or quality management will be required. A project will require stormwater quantity and/or quality management if any of the following apply:

- The project is a new development or redevelopment project that disturbs greater than or equal to one acre.
- The project on an individual parcel disturbs less than one acre, but it is part of a larger overall, project that disturbs over one acre.

- There is a proposed increase in stormwater runoff over 2 cubic feet per second (cfs) for the 20 year-20 minute design rainfall.
- Downstream stormwater problems (insufficient pipe capacity) exist that might require the proposed site to have quantity detention, where less than 2 cfs increase in runoff is proposed.

Further requirements apply to the Harlem sub-watershed where the Kingshighway TOD is to be located. These requirements are:

- For project differential increase 0 to < 2 cfs: Volume reduction type BMPs sized for 75% of the 90th% rainfall 1.14" WQv calculation as shown in 4.080.02.2.b(1). In general, the minimum amount of tributary impervious area to be treated by the BMPs shall be the acreage of added impervious area. The BMPs shall be designed to capture 75% of the WQv from the total drainage area tributary to the BMP. The BMP shall be designed to drain down completely in 2 days. The BMP overflow path shall be designed for the 100-year, 20-minute storm. For an example, see MSD website BMP toolkit.
- For project differential increase 2 cfs or >: TR55 analysis for 2-year and 100-year events, with level pool routing to meet release rates as specified in Table 4-5.
- In the case of new directly sewer connected roof area replacing existing pavement area, MSD will evaluate these on a case-by-case basis.
- For all cases, where localized downstream flooding or localized downstream sewer surcharging occurs, differential runoff calculations and detention routings shall be computed from a completely undeveloped condition as directed by the District.

All new development projects must reasonably mimic pre-construction runoff with the aim of preventing or reducing water quality impacts. Any project site that has an existing percent impervious of twenty (20) percent or less, will be considered new development. Any succeeding or additional development to these sites will also be considered new development. All redevelopment projects must also reasonably mimic pre-construction runoff with the aim of preventing or reducing water quality impacts, by utilizing effective water quality strategies.

Some development planned within the TOD areas may increase the percent impervious, thus requiring water quality and quantity remediation measures. Because of the downstream combined sewer capacity issues, MSD will require the developers to construct remediation measures regardless of whether imperviousness is increased.

The three key components of stormwater quantity and quality management are water quality volume, channel protection storage volume, and flood protection volume. The preferred method to address these components is removing stormwater volume through infiltration.

3.1.1 Water Quality Volume

According to the MSD Rules and Regulations handbook, "The Water Quality Volume is the storage needed to capture and treat the runoff from 90% of the recorded daily rainfall events." In order to calculate the water quality volume (in acre-feet), 1.14 inches of rainfall (P) must be multiplied by the volumetric runoff coefficient and drainage area.

3.1.2 Channel Protection Storage Volume

A 24-hour extended detention of the one-year, 24-hour storm event is required in order to protect downstream channels. In order to protect the downstream channels, runoff must not be released quickly, but rather stored and then gradually released into the system.

3.1.3 Flood Protection Volume

To protect downstream sites from flooding, release rates must not exceed the rates for the 2-year and 100-year, 24-hour storm event. The release rates vary by watershed and can be located in Table 4-5 of the MSD Rules and Regulations handbook.

4.0 PROPOSED STORMWATER QUALITY IMROVEMENTS

4.1 Methods to Address Permitting Requirements

Best Management Practices (BMPs) control stormwater runoff and pollution by introducing a treatment method or technique to the project site. Some BMPs allow infiltration into the soil, some store runoff to reduce hydraulic impact on receiving sewers, and some do both. There are many types of BMPs, but preferred BMPs for the TOD project are bioretention, permeable pavement, rainwater harvesting, green roofs, disconnection and buffer strips. Because of the downstream combined sewer capacity issues at both the Cherokee and Kingshighway TOD sites, water quality and quantity measures will be required. Calculations indicate that approximately 20% of each site should be set aside for storage and other BMPs.

4.1.1 Bioretention Facilities

Bioretention facilities reduce stormwater runoff and improve water quality. They consist of a depressed landscaped area that can store runoff above grade and allow it to infiltrate through prepared soils that filter out pollutants. The facility includes plantings that remove the pollutants from the soil through the root structure. Bioretention facilities should be strategically located to accept runoff from impervious areas on the site. Flows that exceed the above-grade capacity of the facility are directed into an overflow inlet. Infiltration that exceeds the below-grade capacity is directed into a perforated underdrain.

4.1.2 Permeable Pavement

There are three types of permeable pavement: Permeable Interlocking Concrete Pavement (PICP), Porous Asphalt, and Pervious Concrete. The pavement is designed to absorb rainfall and filter it through a reverse-graded aggregate subbase which is above a storage area consisting of large aggregate with 40% voids. The stormwater that does not infiltrate into the native soil is carried away through a perforated underdrain.

4.1.3 Rainwater Harvesting

Rainwater harvesting captures runoff (typically from roofs) and stores it for future uses such as irrigation. Rain barrels are a typical example of this, but larger and more ornate facilities have been used in urban areas and can be used as an aesthetic feature or as a water quality educational tool.

4.1.4 Green Roofs

Living roofs, or in more common terms green roofs, are roofs that are partially or fully covered with vegetation. They provide advantages to the building itself, such as climate control, and also absorb rainfall to reduce the amount of runoff and improve water quality.

4.1.5 Disconnection

Disconnection simply refers to disconnecting a downspout or roof drain that flows directly to an enclosed sewer system. The flow is redirected onto a permeable surface or is captured in a Rainwater Harvesting or Bioretention facility.

4.1.6 Buffer Strips

Buffer strips are strips of vegetation (grassy area, for example) that are placed at the downstream edge of an impervious surface. The runoff is forced to cross the strip, where infiltration reduces volume and filters pollutants. Removal of existing pavement may be required to accommodate a Buffer Strip.

4.2 Recommended BMP Locations

Bioretention Facilities – Could be placed in the medians of parking lots, within street "bump-outs", adjacent to buildings as planter boxes, within roadway medians and within public parks.

Permeable Pavement – Could be used for parking lots, sidewalks, driveways and alleys.

Rainwater Harvesting – Could be used at new and existing buildings.

Green Roofs – Could be used on new buildings.

Disconnection – Could be used for existing buildings.

Buffer Strips – Could be used adjacent to new and existing streets and parking lots.

4.3 Maintenance for BMPS

It is important to factor in the responsibility and cost of maintaining BMPs. Planted BMPs, such as Bioretention Facilities, will require annual plant maintenance and replacement of perennials. The infiltration capacity of the soil may diminish over several years and will require amendment or replacement. Permeable Pavement must be vacuumed at least once per year to remove solids that are trapped in the pavement.

5.0 ESTIMATED CONSTRUCTION COST

5.1 Unit Costs

Based on recent local projects, following are estimates for construction of various BMPs:

Bioretention Facilities – $20 to $25/sf

Permeable Pavement – $15 to $20/sf

Rainwater Harvesting –$150 and up (depends on the aesthetic nature of the BMP).

Green Roofs – $15 to $20/sf

Disconnection – $500 to $1,000 per disconnection.

Buffer Strips – $5 to $10/sy

Based on broad assumptions regarding the total extent of development and BMP construction, the estimated cost to build BMPs is $3.6M in the Cherokee TOD area and$3.5M in the Kingshighway TOD area.

5.2 Financial Partnering Opportunities

For development projects located within the Bissell Watershed, MSD is offering a program to help with funding for new BMPs. This program is part of MSD's effort to satisfy the terms of the Federal Consent Decree that was negotiated with the EPA in 2012.

MSD's *Green Infrastructure Program Financial Partnering for Early Action Projects* is part of MSD's goal of spending $100M for green infrastructure in watersheds that discharge to the Mississippi River. The Partnering Program is being introduced in conjunction with MSD's Green Infrastructure CSO Volume Reduction Pilot Program. As with the Pilot Program, the goal of the Partnering Program is to reduce CSO (combined sewer overflow) by 10%.

More information on this program can be found in the Appendix.

APPENDIX

Metropolitan St. Louis Sewer District
CSO Volume Reduction – Green Infrastructure Program
Financial Partnering for Early Action Projects
August 1, 2012

Introduction and Background Information

MSD's Long Term Control Plan (LTCP) outlines a green infrastructure program as part of the selected long-term Combined Sewer Overflow (CSO) controls. The overall goals of the green infrastructure program, as stated in the LTCP, are to "identify and implement projects and programs that will significantly reduce CSOs and provide additional environmental benefit," as well as reduce CSO overflow volumes to the Mississippi River by 10 percent. Green infrastructure projects will redirect stormwater from reaching the combined sewer system by capturing and diverting it to locations where it is detained, infiltrated into the ground, evaporated, taken up by plants and transpired, or reused.

MSD's selected alternative to reduce CSOs and improve water quality includes $100 million in green infrastructure investments over a period of 23 years. The 23 years will be divided into an initial 5-year $3 million pilot program and a full-scale program for the remaining 18 years and $97 million. MSD anticipates a 5-year period for complete implementation and reporting on the pilot program. In general, work to be done to implement the full-scale program will be based on the green infrastructure plan. However, there may be projects that are identified by MSD and can be agreed upon as being high priority projects suitable for early implementation even before the green infrastructure plan is finalized and approved. When MSD identifies a project or a group of projects that it believes is appropriate for early implementation, the District will propose these projects as an early action project(s) by submitting a written proposal to the EPA. The EPA must approve the project(s) before MSD will proceed.

While the core of MSD's green infrastructure pilot program will be stormwater retrofitting conducted in partnership with the City of St. Louis, MSD will continue to seek to build partnerships with other municipalities, schools, community development organizations, and private developers. The goal is to engage partners to identify joint opportunities to incorporate green infrastructure into ongoing programs and future redevelopment projects.

Potential Eligible Project Elements

The following list shows eligible project elements. Other elements related to the green infrastructure program may be eligible if they are in accordance with the program objectives.

- Impervious area reduction
- Porous pavement

Reinforced turf

-
- Amended soils
- Planter boxes
- Bioretention/Rain gardens

- Impervious area sheet flow to buffer
- Rooftop disconnection to rain barrel
- Rooftop disconnection to cistern: irrigation reuse
- Rooftop disconnection (splash to grade)
- Green roofs
- Blue roofs
- Green streets
- Curb extensions/Street bumpouts
- Other techniques as approved by MSD

Eligible Recipients
The following entities are eligible for financial partnering:

- Municipalities and local government agencies
- Schools
- Non-profit organizations
- Community development organizations
- Business owners
- Private developers

Funding Considerations
MSD plans to spend approximately $5 million per year on the green infrastructure program. Some of the funds may be allocated to MSD projects, and it has not been determined how much funding will be available for the partnership projects. Allocations will be based on a priority ranking system. Projects that provide a funding match will receive a higher priority ranking. However, providing a match is not required. Costs that may be eligible for reimbursement by MSD include the following: engineering, soils assessment and/or restoration, legal costs associated with deed restrictions and/or easements, property acquisition, demolition, construction of green infrastructure, public participation activities, and monitoring of green infrastructure and associated laboratory analyses. Projects that are completed or have already started construction are not eligible.

Required Activities
Preference shall be given to projects that can manage at least 1.14 inches of stormwater rainfall from the contributing drainage area. A reduction of runoff volume must be demonstrated and supported with calculations. Applicants should reference the Maximum Extent Practicable (MEP) spreadsheet and calculation tool available at the MSD website stlmsd.com/engineering/planreview/bmptoolbox/calctools. Upon approval, all projects chosen for financial assistance shall be submitted for review per the District's plan review process. The cost categories listed in the above paragraph plus maintenance cost for green infrastructure (during the first five years of operation) must be tracked and reported on.

Evaluation Criteria and Process

General
Evaluators from MSD will score projects based on the application information submitted by the applicants. Project ranking will be primarily based on their potential for anticipated reduction of

CSO overflow volume. Eligible projects must be located upstream of a CSO outlet that discharges directly to the Mississippi River. Projects that are located downstream of the interceptor will not be eligible. Wherever opportunities exist for MSD to make informed choices between different properties available for stormwater retrofitting with green infrastructure, MSD will prioritize these projects based on their expected CSO reductions from previous hydrologic modeling. For example, properties in the Harlem, Baden, and Rocky Branch citysheds would receive a higher ranking than those in the Mill Creek cityshed because of the greater response rate of CSOs to changing imperviousness in the former three citysheds.

Project Specific

Benefit points will be awarded for each 100 cubic feet of runoff volume reduced and each 100 square feet of impervious area removed or redirected to a BMP. Projects proposed by municipalities and local governmental agencies will receive more benefit points than non-profit entity projects, which will receive more benefit points than private entity projects. Additional benefit points may be awarded for proposed activities such as: public education, information, and communication; innovative green infrastructure technologies; stormwater monitoring and analysis program; location of CSO; project visibility; feasibility of future expansion; maintenance capability; long term sustainability; and environmental justice considerations. The total benefit points will be divided by MSD's cost (in thousands of dollars) to calculate the priority ranking. This will yield the most benefit points per MSD dollar spent.

Award of Funds

MSD will award funds through a Letter of Agreement executed by MSD and the Partner. The Letter of Agreement will describe the project, specify the funding amount and outline additional terms and conditions, and will serve as the legal commitment of both parties as to the scope and quality of work and the amount of funds committed.

Disbursement of Funds and Progress Reports

Funds will be disbursed on a cost-incurred basis and supported with original receipts verifying costs. MSD construction approval of the green infrastructure facility is required prior to reimbursement. Progress reports are due with each payment request. Progress reports are required each month regardless of the level of work completed during the period unless otherwise specified by the District. Progress reports are required for timely processing of payment requests.

Application and Submittal Process

<u>FY 2013 Submittals</u>

- The application period is from August 1, 2012 to October 31, 2012.
- Applications are due to MSD by October 31, 2012 at 5:00 p.m.
- MSD will notify the applicants of their decision by January 31, 2013.

Construction must begin prior to August 1, 2013.

-

<u>FY 2014 Submittals</u>

- The application period is from August 1, 2013 to October 31, 2013.
- Applications are due to MSD by October 31, 2013 at 5:00 p.m.

- MSD will notify the applicants of their decision by January 31, 2014.
- Construction must begin prior to August 1, 2014.

FY 2015 Submittals

- The application period is from August 1, 2014 to October 31, 2014.
- Applications are due to MSD by October 31, 2014 at 5:00 p.m.
- MSD will notify the applicants of their decision by January 31, 2015.
- Construction must begin prior to August 1, 2015.

Please direct all questions and submittals for this partnering opportunity to Mark Koester of MSD's Program Planning Section. Interested applicants are encouraged to discuss possible proposals with Mr. Koester as soon as possible to facilitate good proposals and efficient reviews.

Mark A. Koester, P.E.
Metropolitan St. Louis Sewer District
2350 Market Street
St. Louis, MO 63103
(314) 768-6327
makoes@stlmsd.com

Metropolitan St. Louis Sewer District
CSO Volume Reduction – Green Infrastructure Program
Early Action Projects
Application Form for Financial Partnering

Project Title_____

Contact Person_____

Name of Organization_____

Address_____

City_____State_____Zip Code_____

Telephone Number – Office_____Cell_____

Email Address_____

1. Please describe the purpose of the project in 3 pages or less using Times New Roman 12 point font and provide information on the following items:
   - Describe the work that will be done using the MSD funding.
   - Identify the specific deliverables and the anticipated outcomes associated with the major project components.
   - Describe in detail the tasks and schedule for the project. Include milestones and timelines for accomplishing tasks for the project time period.
   - Explain how the project will reduce runoff volume and if it is ready for implementation. Include calculations using the MEP spreadsheets.
   - Include a copy of the site plan and a drainage area map.
   - Include why the project will work and, if applicable, what makes it innovative.
   - Describe the maintenance plan for the green infrastructure to ensure sustainability.
   - If applicable, explain how you will engage partners and other stakeholders in the project.
   - Three (3) bound hard copies shall be submitted.

2. Dollar amount requested_____
3.

   Please attach a budget for the project, including matching funds, if applicable. If other funding will be used, list funding sources and note if those funds are secured. If they are not, describe the likelihood of securing those funds. The following categories of cost must be tracked and reported on: engineering, soils assessment and/or restoration, legal costs associated with deed restrictions and/or easements, property acquisition, demolition, construction of green infrastructure,

maintenance of green infrastructure (during the first five years of operation), public participation activities, and monitoring of green infrastructure and associated laboratory analyses.

4. List of project parameters

   Impervious area removed or redirected to BMP_____square feet

   Runoff volume reduction_____cubic feet

   Address of project_____

   Cityshed_____

   Applicant is a Municipality or Local Government Agency or Non-Profit or Private Entity (circle one)

   Green Infrastructure Technology Proposed_____

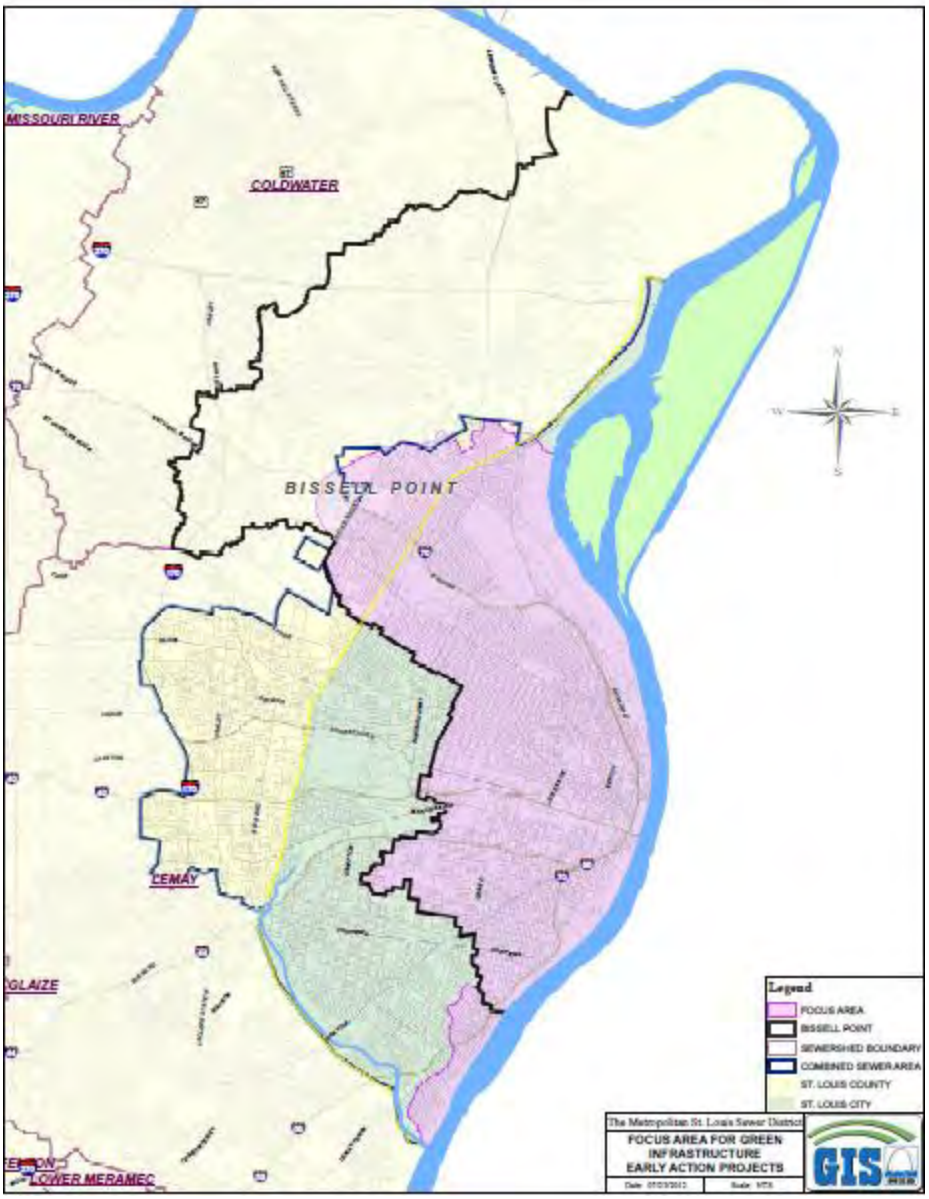
   Proposal contains a public education component Yes or No (circle one)

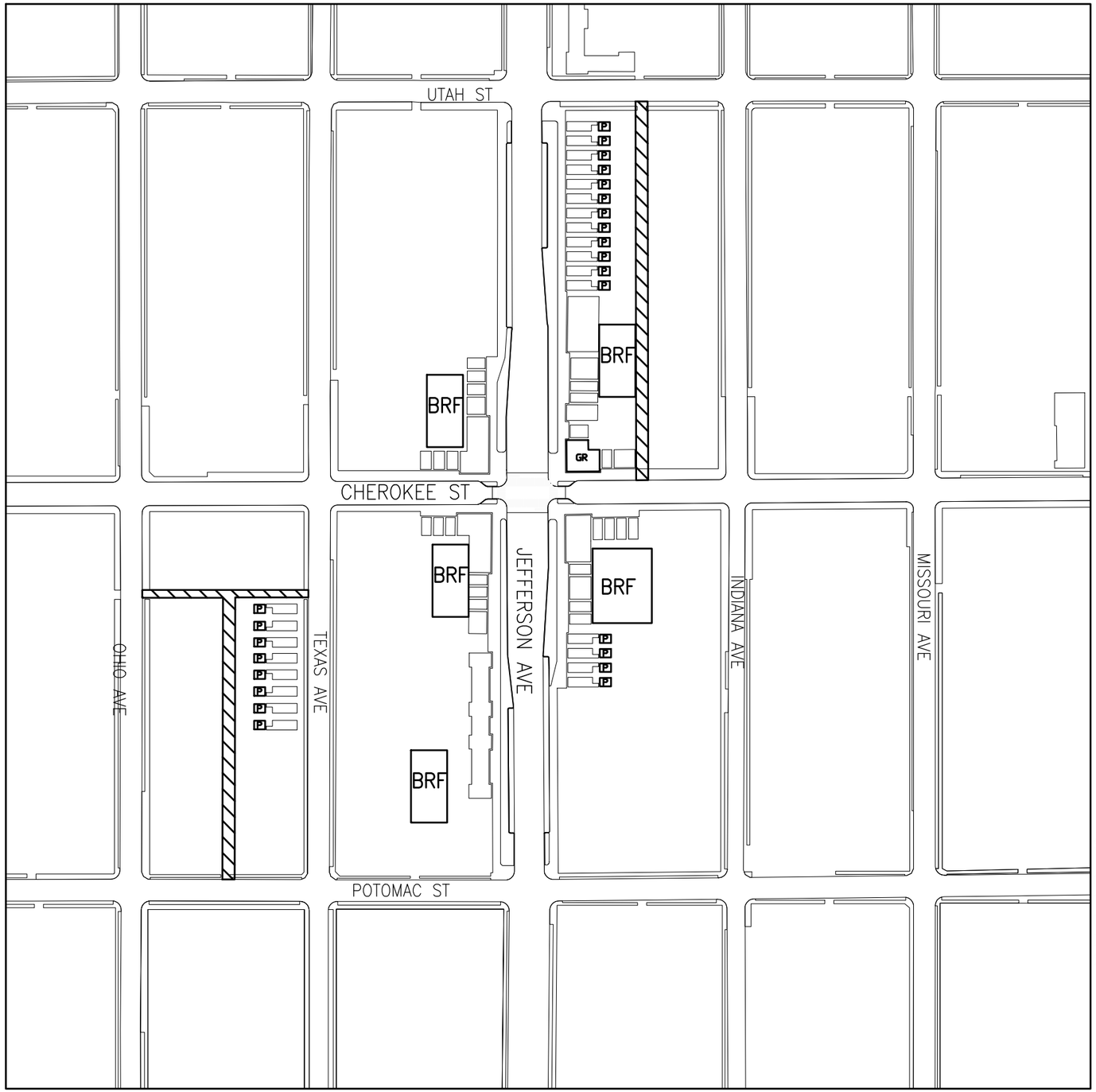
   Entity responsible for maintenance_____

5. Certification by applicant

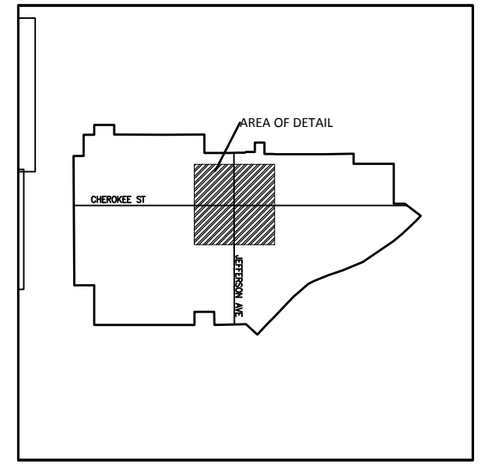
   The applicant certifies that all information in this application, and all information furnished in support of the application is true and complete to the best of the applicant's knowledge and belief. The applicant understands that the EPA and MDNR must approve the project before MSD can commit funds.

_____	_____	_____
Applicant Signature	Print Name	Date


MISSOURI RIVER
COLDWATER
BISSELL POINT
CEMAY
GLAIZE
LOWER MERAMEC
Legend
FOCUS AREA
BISSELL POINT
SEWERSHED BOUNDARY
COMBINED SEWER AREA
ST. LOUIS COUNTY
ST. LOUIS CITY
The Metropolitan St. Louis Sewer District
FOCUS AREA FOR GREEN INFRASTRUCTURE EARLY ACTION PROJECTS
GIS



1/2 MILE TRANSIT SHED
LOCATION MAP



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KEY

BRF	BIORETENTION FACILITY
	PERMEABLE PAVEMENT
P	PLANTER BOX
RH	RAINWATER HARVESTING
GR	GREEN ROOF

NOTES:
1. APPROXIMATELY 20% OF EACH DEVELOPMENT PARCEL SHOULD BE SET ASIDE FOR WATER QUALITY AND QUANTITY DETENTION.
2. WATER QUALITY BIORETENTION FACILITIES WILL LIKELY BE REQUIRED FOR LOTS THAT DISTURB GREATER THAN ONE ACRE DURING DEVELOPMENT.
3. PERMEABLE ALLEYS MAY NOT BE REQUIRED BY MSD, BUT CAN BE VOLUNTARILY CONSTRUCTED AS A NEIGHBORHOOD AMENITY.
4. THE CHEROKEE STATION IS LOCATED IN THE BISSELL WATERSHED AND MAY QUALIFY FOR PARTNERING FUNDS FROM MSD TO HELP BUILD GREEN INFRASTRUCTURE BMPS.
5. CALCULATIONS WERE PERFORMED FOR A VARIETY OF POSSIBLE SCENARIOS FOR NEW BUILDING CONSTRUCTION AND THE CORRESPONDING REQUIRED AREA OF BIORETENTION FACILITIES (BRF). THE BRFs CAN BE SPLIT AND PLACED THROUGHOUT THE SITE, IF NECESSARY. RAIN GARDENS, BIORETENTION SWALES AND PLANTER BOXES ARE EXAMPLES OF BRFs. PLACEMENT OF PERVIOUS PAVEMENT, GREEN ROOFS OR SIMPLE GREEN SPACE IN CONJUNCTION WITH THE BRF WILL REDUCE THE NECESSARY REQUIRED BRF AREA. PONDING DEPTH IN THE BRF IS ASSUMED TO BE 36" BEFORE OVERFLOW IS DIRECTED TO THE COMBINED SEWER SYSTEM. THE BRFs WILL ALSO ACT AS DETENTION STORAGE FACILITES IN ORDER TO ALLEVIATE FLOODING DOWNSTREAM IN UNDERSIZED COMBINED SEWERS.
6. THE SIZE OF THE BMP DESIGNATOR DOES NOT REPRESENT THE ACTUAL SIZE RECOMMENDED FOR CONSTRUCTION. SEE THE "SAMPLE SUMMARY OF BIORETENTION/STORAGE FACILITY SIZES" TABLE FOR DIRECTION ON REQUIRED SIZES.

SAMPLE SUMMARY OF BIORETENTION/STORAGE FACILITY SIZES

BUILDING(s) FOOTPRINT (Ac) =	0.28	0.34	0.46	0.69
TOTAL LOT SIZE (Ac) =	0.61	1.00	1.21	1.98
PERCENT IMPERVIOUS (%) =	90.0	86.0	86.0	88.0
BIORETENTION/STORAGE REQUIRED (sf) =	4,350	6,700	8,150	13,550
% OF SITE USED FOR BIORETENTION/STORAGE =	16	15	15	16

CHEROKEE STATION
SITE PLAN

STORMWATER AND
ENVIRONMENTAL PLANNING

H3

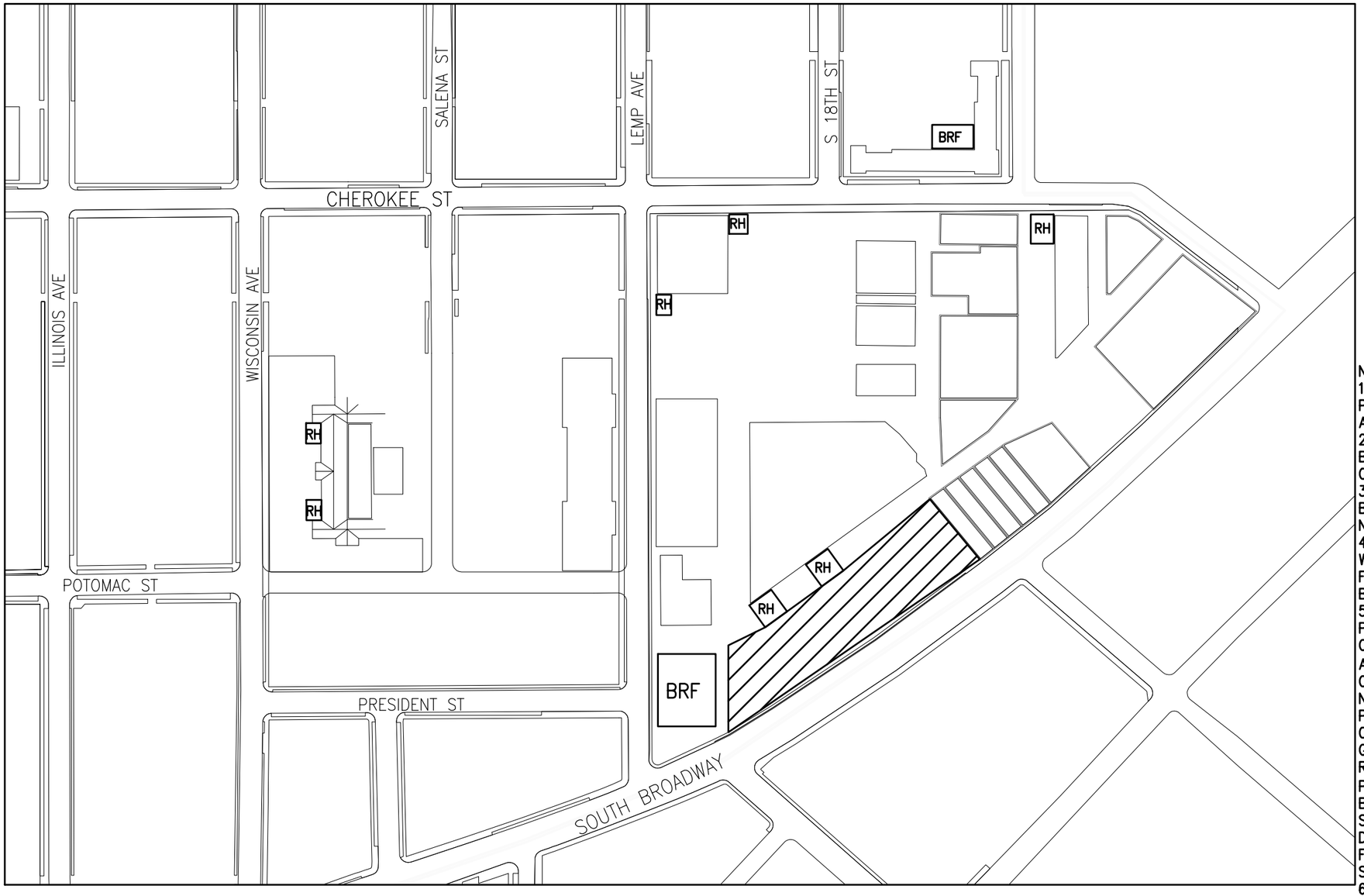
TRANSPORTATION
ORIENTED
DEVELOPMENT
STATION
AREA PLANNING

m3 ENGINEERING GROUP P.C.
911 Washington Avenue
Suite 620
St. Louis, Missouri 63101
www.m3eg.com
PH: 314.588.0699
FX: 314.588.9442

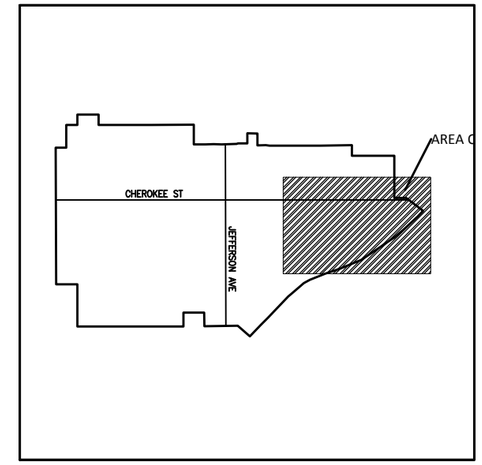
Project No.
013/SLDC/001-003

Date
06/24/2013

SW-1



1/2 MILE TRANSIT SHED
LOCATION MAP



NOTES:
1. APPROXIMATELY 20% OF EACH DEVELOPMENT PARCEL SHOULD BE SET ASIDE FOR WATER QUALITY AND QUANTITY DETENTION.
2. WATER QUALITY BIORETENTION FACILITIES WILL LIKELY BE REQUIRED FOR LOTS THAT DISTURB GREATER THAN ONE ACRE DURING DEVELOPMENT.
3. PERMEABLE ALLEYS MAY NOT BE REQUIRED BY MSD, BUT CAN BE VOLUNTARILY CONSTRUCTED AS A NEIGHBORHOOD AMENITY.
4. THE CHEROKEE STATION IS LOCATED IN THE BISSELL WATERSHED AND MAY QUALIFY FOR PARTNERING FUNDS FROM MSD TO HELP BUILD GREEN INFRASTRUCTURE BMPS.
5. CALCULATIONS WERE PERFORMED FOR A VARIETY OF POSSIBLE SCENARIOS FOR NEW BUILDING CONSTRUCTION AND THE CORRESPONDING REQUIRED AREA OF BIORETENTION FACILITIES (BRF). THE BRFs CAN BE SPLIT AND PLACED THROUGHOUT THE SITE, IF NECESSARY. RAIN GARDENS, BIORETENTION SWALES AND PLANTER BOXES ARE EXAMPLES OF BRFs. PLACEMENT OF PERVIOUS PAVEMENT, GREEN ROOFS OR SIMPLE GREEN SPACE IN CONJUNCTION WITH THE BRF WILL REDUCE THE NECESSARY REQUIRED BRF AREA. PONDING DEPTH IN THE BRF IS ASSUMED TO BE 36" BEFORE OVERFLOW IS DIRECTED TO THE COMBINED SEWER SYSTEM. THE BRFs WILL ALSO ACT AS DETENTION STORAGE FACILITES IN ORDER TO ALLEVIATE FLOODING DOWNSTREAM IN UNDERSIZED COMBINED SEWERS.
6. THE SIZE OF THE BMP DESIGNATOR DOES NOT REPRESENT THE ACTUAL SIZE RECOMMENDED FOR CONSTRUCTION. SEE THE "SAMPLE SUMMARY OF BIORETENTION/STORAGE FACILITY SIZES" TABLE FOR DIRECTION ON REQUIRED SIZES.

KEY

BRF	BIORETENTION FACILITY
	PERMEABLE PAVEMENT
P	PLANTER BOX
RH	RAINWATER HARVESTING
GR	GREEN ROOF

N

0 50 100 200

SAMPLE SUMMARY OF BIORETENTION/STORAGE FACILITY SIZES

BUILDING(s) FOOTPRINT (Ac) =	0.28	0.34	0.46	0.69
TOTAL LOT SIZE (Ac) =	0.61	1.00	1.21	1.98
PERCENT IMPERVIOUS (%) =	90.0	86.0	86.0	88.0
BIORETENTION/STORAGE REQUIRED (sf) =	4,350	6,700	8,150	13,550
% OF SITE USED FOR BIORETENTION/STORAGE =	16	15	15	16

CHEROKEE STATION
SITE PLAN

STORMWATER AND
ENVIRONMENTAL PLANNING

H3

TRANSPORTATION
ORIENTED
DEVELOPMENT
STATION
AREA PLANNING

m3 ENGINEERING GROUP P.C.
911 Washington Avenue
Suite 620
St. Louis, Missouri 63101
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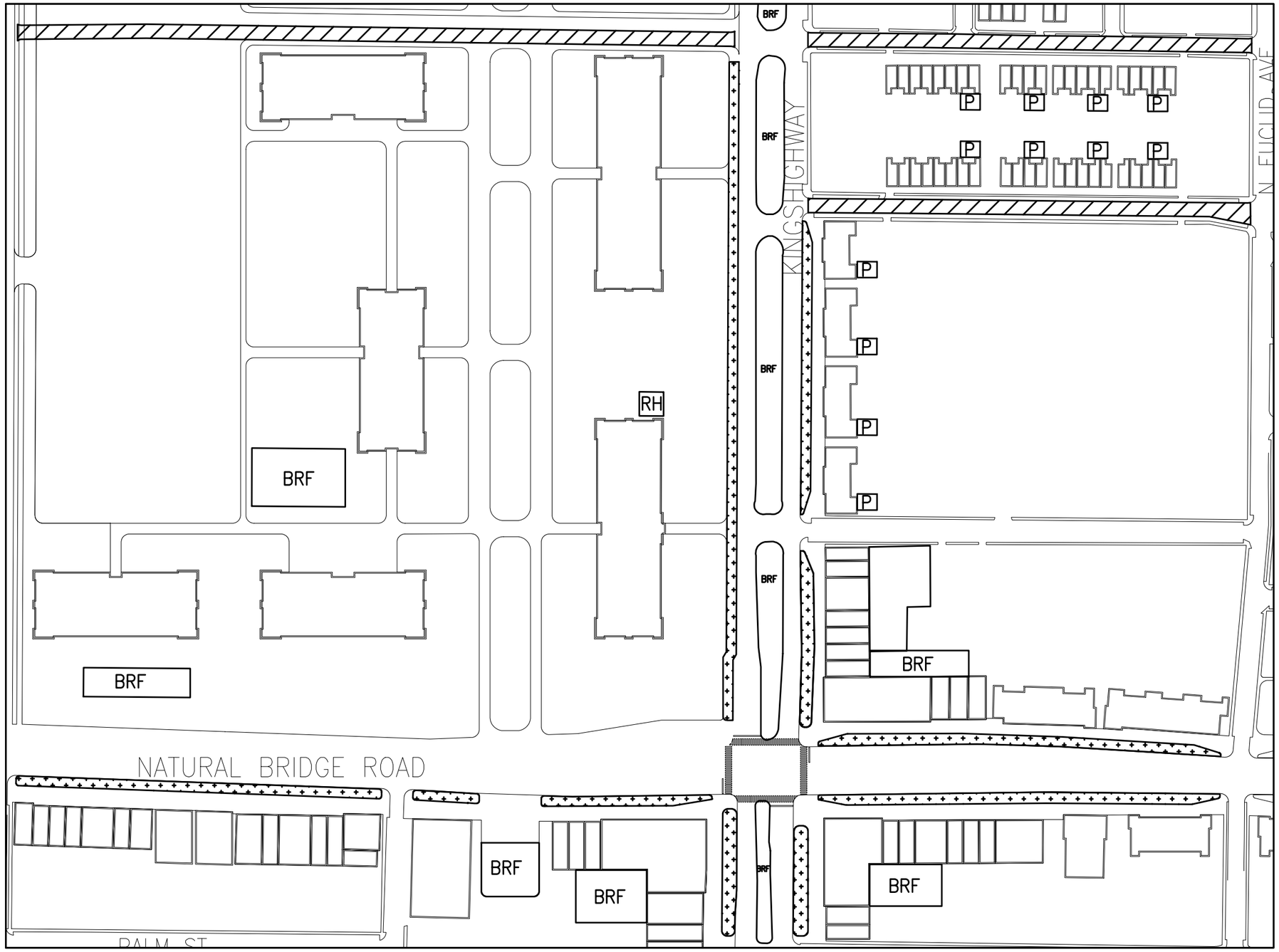
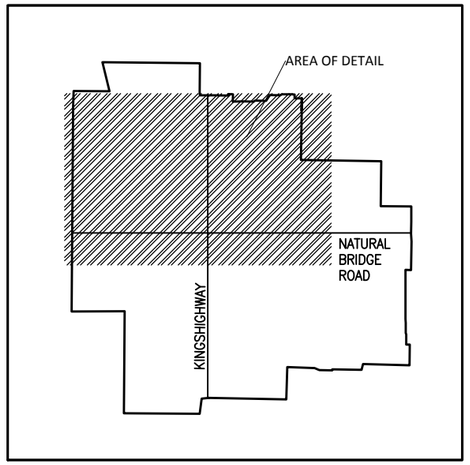
Project No.
013/SLDC/001-003

Date
06/24/2013

SW-2



1/4 MILE TRANSIT SHED LOCATION MAP



NOTES:
1. APPROXIMATELY 20% OF EACH DEVELOPMENT PARCEL SHOULD BE SET ASIDE FOR WATER QUALITY AND QUANTITY DETENTION.
2. SOME BMPS COULD BE SITUATED ALONG KINGSHIGHWAY IN FRONT OF THE PROPOSED BUILDINGS, IN ORDER TO CREATE A GREEN CORRIDOR.
3. GREEN SET BACK IS INTENDED TO CREATE A SPACE FOR GREEN INFRASTRUCTURE AND LANDSCAPE PLANTING.
4. CALCULATIONS WERE PERFORMED FOR A VARIETY OF POSSIBLE SCENARIOS FOR NEW BUILDING CONSTRUCTION AND THE CORRESPONDING REQUIRED AREA OF BIORETENTION FACILITIES (BRF). THE BRFs CAN BE SPLIT AND PLACED THROUGHOUT THE SITE, IF NECESSARY. RAIN GARDENS, BIORETENTION SWALES AND PLANTER BOXES ARE EXAMPLES OF BRFs. PLACEMENT OF PERVIOUS PAVEMENT, GREEN ROOFS OR SIMPLE GREEN SPACE IN CONJUNCTION WITH THE BRF WILL REDUCE THE NECESSARY REQUIRED BRF AREA. PONDING DEPTH IN THE BRF IS ASSUMED TO BE 36" BEFORE OVERFLOW IS DIRECTED TO THE COMBINED SEWER SYSTEM. THE BRFs WILL ALSO ACT AS DETENTION STORAGE FACILITES IN ORDER TO ALLEVIATE FLOODING DOWNSTREAM IN UNDERSIZED COMBINED SEWERS.
5. THE SIZE OF THE BMP DESIGNATOR DOES NOT REPRESENT THE ACTUAL SIZE RECOMMENDED FOR CONSTRUCTION. SEE THE "SAMPLE SUMMARY OF BIORETENTION/STORAGE FACILITY SIZES" TABLE FOR DIRECTION ON REQUIRED SIZES.

KEY

BRF	BIORETENTION FACILITY
	PERMEABLE PAVEMENT
P	PLANTER BOX
RH	RAINWATER HARVESTING
GR	GREEN ROOF
	GREEN SET BACK

0 50 100 200

SAMPLE SUMMARY OF BIORETENTION/STORAGE FACILITY SIZES

BUILDING(s) FOOTPRINT (Ac) =	0.28	0.34	0.46	0.69
TOTAL LOT SIZE (Ac) =	0.61	1.00	1.21	1.98
PERCENT IMPERVIOUS (%) =	90.0	86.0	86.0	88.0
BIORETENTION/STORAGE REQUIRED (sf) =	4,350	6,700	8,150	13,550
% OF SITE USED FOR BIORETENTION/STORAGE =	16	15	15	16

KINGSHIGHWAY STATION
SITE PLAN

STORMWATER AND ENVIRONMENTAL PLANNING

H3

TRANSPORTATION ORIENTED DEVELOPMENT STATION AREA PLANNING

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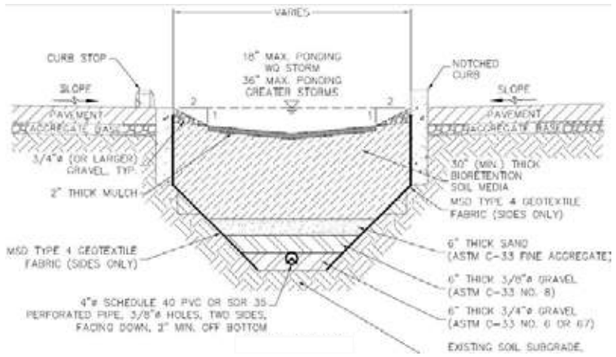
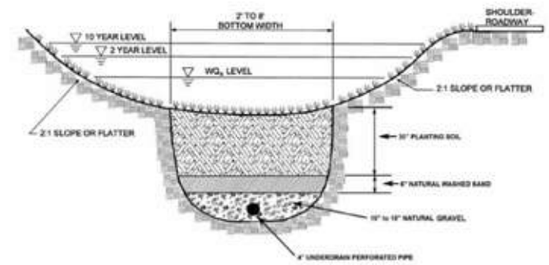
Project No.
013/SLDC/001-003

Date
06/24/2013

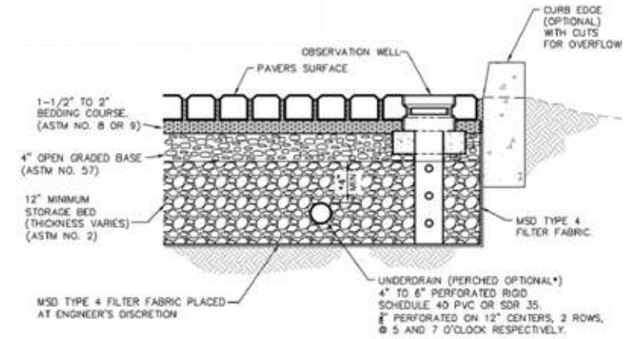
SW-3



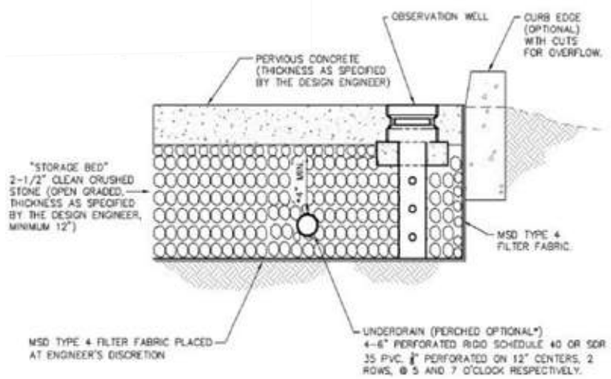
BIORETENTION FACILITY



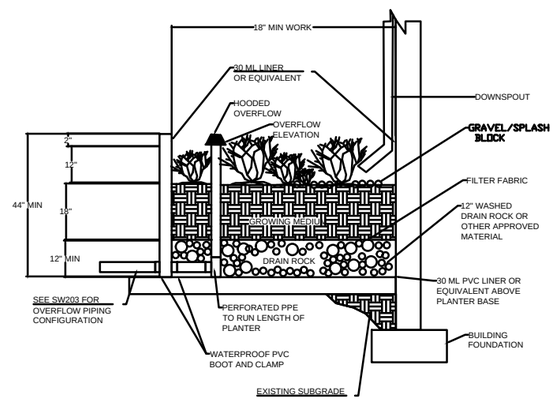
BIORETENTION ROADWAY SWALE



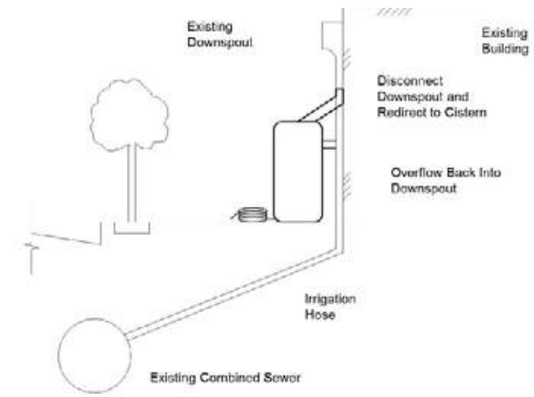
PERMEABLE INTERLOCKING CONCRETE PAVEMENT



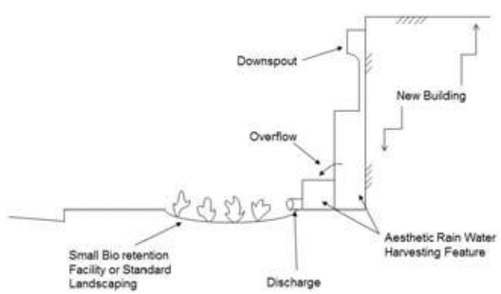
PERVIOUS CONCRETE PAVEMENT



PLANTER BOX



RAINWATER HARVESTING – EXISTING BUILDING



RAINWATER HARVESTING – NEW BUILDING

NOTES:
1. THE DESIGN AND CONSTRUCTION OF THE STORMWATER BMPs MUST MEET THE WATER QUALITY REQUIREMENTS OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT (MSD).
2. THE DETAILS SHOWN ARE FOR INFORMATION PURPOSES ONLY. EACH BMP MUST BE DESIGNED TO MEET THE SPECIFIC NEEDS OF THE INDIVIDUAL SITES.

DETAIL SHEET
SITE PLAN

STORMWATER AND ENVIRONMENTAL PLANNING

H3

TRANSPORTATION ORIENTED DEVELOPMENT STATION AREA PLANNING

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Project No.
013/SLDC/001-003

Date
06/24/2013

SW-4

ENGINEERING CALCULATIONS

Project: TOD SAP Cherokee/Kingshighway
Project Number:
Engineer: MWE
Date: June 27, 2013

Calculations were performed for a variety of possible scenarios for new building construction and the corresponding required area of bioretention facilities (BRF). The BRFs can be split and placed throughout the site, if necessary. Rain gardens, bioretention swales and planter boxes are example of BRFs. Placement of pervious pavement, green roofs or simple green space in conjunction with the BRF will reduce the necessary required BRF area. Ponding depth inthe BRF is assumed to be 36" before overflow is directed to the combined sewer system. The BRFs will also be utilized for detention to help alleviate downstream flooding due to undersized combined sewers.

Sample Summary of Bioretention/Storage Facility Sizes

Building(s) Footprint (Ac) =	0.28	0.34	0.46	0.69
Total Lot Size (Ac) =	0.61	1.00	1.21	1.98
Percent Impervious (%) =	90	86	86	88
Bioretention/Storage Required (sf) =	4,333	6,688	8,134	13,550
% of Site Used for Bioretention/Storage =	16%	15%	15%	16%

ENGINEERING CALCULATIONS

Project: TOD SAP Cherokee/Kingshighway
Project Number:
Engineer: MWE
Date: June 27, 2013

m3 ENGINEERING GROUP P.C.

Proposed TOD at Cherokee and Kingshighway Stations.
Calculate Water Quality and Detention Volume Required.
Due to DS flood complaints, assume existing site is undeveloped.

	SF	Ac	% Imp WQv	Ac x% imp	20 yr 20 min Pre PI	Post PI	Differen RO cfs
Building Roof (Splash to Grade)	12,000	0.28	100	0.28	1.78	3.70	0.53
Parking Lot/Pavement	12,000	0.28	100	0.275	1.78	3.70	0.53
Bioretention Facility	1,500	0.03	5	0.00	1.78	1.78	
Greenscape	1,200	0.03	5	0.00	1.78	1.78	
Total	26,700	0.61		0.5541			1.058

Composite % Imp = 0.5541 / 0.61
Composite % Imp = 90.39%

Building(s) Footprint =	0.28	Acres
Total Lot Size =	0.61	Acres
Percent Impervious =	90.39%	

Calculate WQv required

WQv=[(P)(Rv)(A)]/12 P= 1.14/12 = 0.095 ft of rainfall
Composite Percent Impervious = 90.39%

Rv = 0.05 + 0.009 x 90.39% = 0.8635
WQv = 0.095 x 0.8635 x 0.613 = 0.05028 Ac-ft
= 2,190 cf

Calculate Detention Volume Required

Diff RO x 1800 x 5 = Storage Volume Required in cf
Diff RO = 1.058 cfs

Detention Volume Required = 9,521 cf

Calculate Area Required for WQv and Detention BMP

Total Volume Required =	11,711	cf
Allowable ponding depth =	3	ft
Approx Increase in Area for Side Slopes =	20	%
Area Required W/O non-structural BMPs =	4,684	sf
Area Required W/non-structural BMPs =	4,333	sf

(Assume 7.5% reduction due to other on site non-structural BMPs)

ENGINEERING CALCULATIONS

Project: TOD SAP Cherokee/Kingshighway
Project Number:
Engineer: MWE
Date: June 27, 2013

Proposed TOD at Cherokee and Kingshighway Stations.
Calculate Water Quality and Detention Volume Required.
Due to DS flood complaints, assume existing site is undeveloped.

	SF	Ac	% Imp WQv	Ac x% imp	20 yr 20 min Pre PI	Post PI	Differen RO cfs
Building Roof (Splash to Grade)	15,000	0.34	100	0.34	1.78	3.70	0.66
Parking Lot/Pavement	22,000	0.51	100	0.505	1.78	3.70	0.97
Bioretention Facility	3,900	0.09	5	0.00	1.78	1.78	
Greenscape	2,500	0.06	5	0.00	1.78	1.78	
Total	43,400	1.00		0.8567			1.631

Composite % Imp = 0.8567 / 1.00
Composite % Imp = 85.99%

Building(s) Footprint =	0.34	Acres
Total Lot Size =	1.00	Acres
Percent Impervious =	85.99%	

Calculate WQv required

WQv=[(P)(Rv)(A)]/12 P= 1.14/12 = 0.095 ft of rainfall
Composite Percent Impervious = 85.99%

Rv = 0.05 + 0.009 x 85.99% = 0.8239
WQv = 0.095 x 0.8239 x 0.996 = 0.07798 Ac-ft
= 3,397 cf

Calculate Detention Volume Required

Diff RO x 1800 x 5 = Storage Volume Required in cf
Diff RO = 1.631 cfs

Detention Volume Required = 14,678 cf

Calculate Area Required for WQv and Detention BMP

Total Volume Required =	18,075	cf
Allowable ponding depth =	3	ft
Approx Increase in Area for Side Slopes =	20	%
Area Required W/O non-structural BMPs =	7,230	sf
Area Required W/non-structural BMPs =	6,688	sf

(Assume 7.5% reduction due to other on site non-structural BMPs)

ENGINEERING CALCULATIONS

Project: TOD SAP Cherokee/Kingshighway
Project Number:
Engineer: MWE
Date: June 27, 2013

Proposed TOD at Cherokee and Kingshighway Stations.
Calculate Water Quality and Detention Volume Required.
Due to DS flood complaints, assume existing site is undeveloped.

	SF	Ac	% Imp WQv	Ac x% imp	20 yr 20 min Pre PI	Post PI	Differen RO cfs
Building Roof (Splash to Grade)	20,000	0.46	100	0.46	1.78	3.70	0.88
Parking Lot/Pavement	25,000	0.57	100	0.574	1.78	3.70	1.10
Bioretention Facility	4,900	0.11	5	0.01	1.78	1.78	
Greenscape	3,000	0.07	5	0.00	1.78	1.78	
Total	52,900	1.21		1.0421			1.983

Composite % Imp = 1.0421 / 1.21
Composite % Imp = 85.81%

Building(s) Footprint =	0.46	Acres
Total Lot Size =	1.21	Acres
Percent Impervious =	85.81%	

Calculate WQv required

WQv=[(P)(Rv)(A)]/12 P= 1.14/12 = 0.095 ft of rainfall
Composite Percent Impervious = 85.81%

Rv = 0.05 + 0.009 x 85.81% = 0.8223
WQv = 0.095 x 0.8223 x 1.214 = 0.09487 Ac-ft
= 4,133 cf

Calculate Detention Volume Required

Diff RO x 1800 x 5 = Storage Volume Required in cf
Diff RO = 1.983 cfs

Detention Volume Required = 17,851 cf

Calculate Area Required for WQv and Detention BMP

Total Volume Required =	21,984	cf
Allowable ponding depth =	3	ft
Approx Increase in Area for Side Slopes =	20	%
Area Required W/O non-structural BMPs =	8,794	sf
Area Required W/non-structural BMPs =	8,134	sf

(Assume 7.5% reduction due to other on site non-structural BMPs)

ENGINEERING CALCULATIONS

Project: 1.2
Project Number:
Engineer: MWE
Date: June 27, 2013

ENGINEERING GROUP P.C.

Proposed TOD at Cherokee and Kingshighway Stations.
Calculate Water Quality and Detention Volume Required.
Due to DS flood complaints, assume existing site is undeveloped.

	SF	Ac	% Imp WQv	Ac x% imp	20 yr 20 min Pre PI	Post PI	Differen RO cfs
Building Roof (Splash to Grade)	30,000	0.69	100	0.69	1.78	3.70	1.32
Parking Lot/Pavement	45,000	1.03	100	1.033	1.78	3.70	1.98
Bioretention Facility	8,200	0.19	5	0.01	1.78	1.78	
Greenscape	3,000	0.07	5	0.00	1.78	1.78	
Total	86,200	1.98		1.7346			3.306

Composite % Imp = 1.7346 / 1.98
Composite % Imp = 87.66%

Building(s) Footprint =	0.69	Acres
Total Lot Size =	1.98	Acres
Percent Impervious =	87.66%	

Calculate WQv required

WQv=[(P)(Rv)(A)]/12 P= 1.14/12 = 0.095 ft of rainfall
Composite Percent Impervious = 87.66%

Rv = 0.05 + 0.009 x 87.66% = 0.8389
WQv = 0.095 x 0.8389 x 1.979 = 0.15771 Ac-ft
= 6,870 cf

Calculate Detention Volume Required

Diff RO x 1800 x 5 = Storage Volume Required in cf
Diff RO = 3.306 cfs

Detention Volume Required = 29,752 cf

Calculate Area Required for WQv and Detention BMP

Total Volume Required =	36,622	cf
Allowable ponding depth =	3	ft
Approx Increase in Area for Side Slopes =	20	%
Area Required W/O non-structural BMPs =	14,649	sf
Area Required W/non-structural BMPs =	13,550	sf

(Assume 7.5% reduction due to other on site non-structural BMPs)

ENGINEERING CALCULATIONS

Project: TOD SAP Cherokee/Kingshighway
Project Number:
Engineer: MWE
Date: June 27, 2013

Proposed TOD at Cherokee and Kingshighway Stations.

PRELIMINARY Estimated Cost of Construction for Water Quality and Qater Quantity

Bioretention Facilities – $20 to $25/sf
Permeable Pavement – $15 to $20/sf
Rainwater Harvesting –$150 and up (depends on the aesthetic nature of the BMP).
Green Roofs – $15 to $20/sf
Disconnection – $500 to $1,000 per disconnection.
Buffer Strips – $5 to $10/sy

Cherokee

	Unit	No.	Unit Cost	Cost
Bioretention Facilities	SF	61,400	$25	$1,535,000
Permeable Pavement	SF	94,000	$20	$1,880,000
Rainwater Harvesting	EA	6	$20,000	$120,000
Green Roofs	SF	3,000	$25	$75,000
			Total	**$3,610,000**

Kingshighway

	Unit	No.	Unit Cost	Cost
Bioretention Facilities	SF	90,700	$25	$2,267,500
Permeable Pavement	SF	58,000	$20	$1,160,000
Rainwater Harvesting	EA	1	$20,000	$20,000
Green Roofs	SF		$25	
			Total	**$3,447,500**

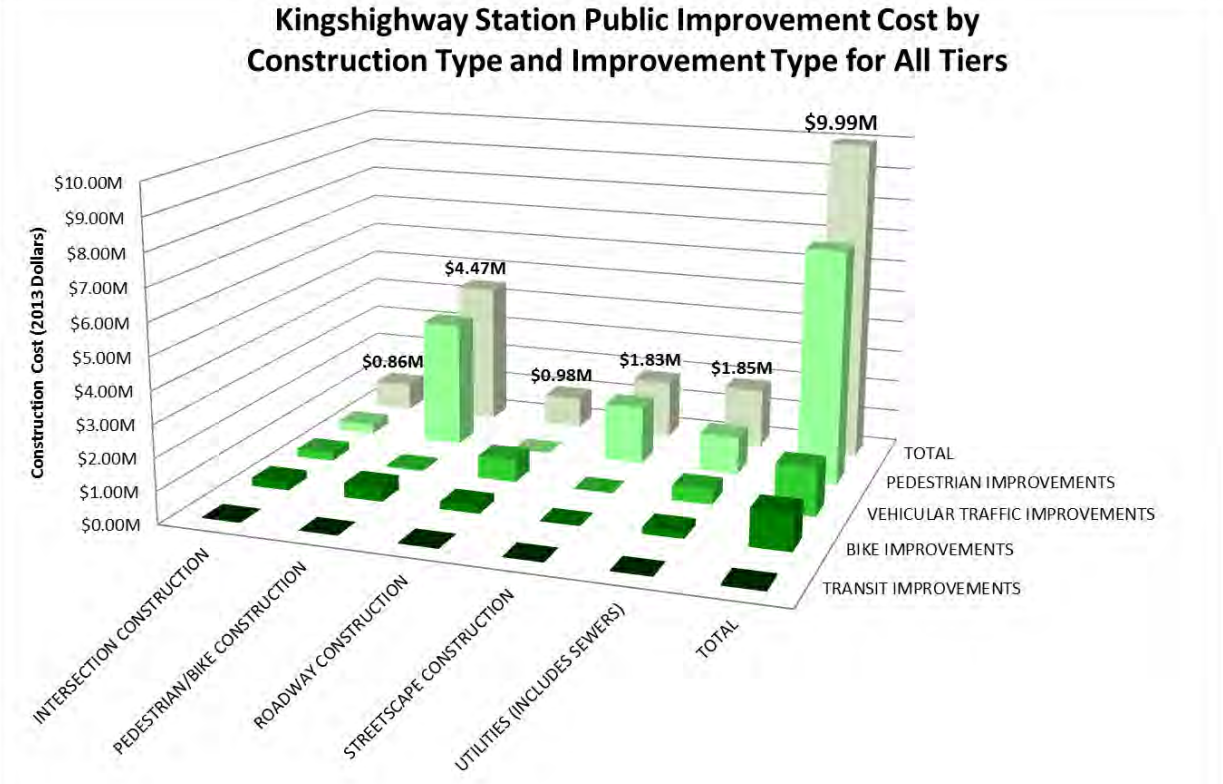
Note: The above costs are based on broad assumptions. The costs represent BMPs built on both public and private property.

Opinion of Probable Costs:
M3 Engineering Group

Summary of Estimated TOD Station Public Improvement Construction Costs

Kingshighway Station

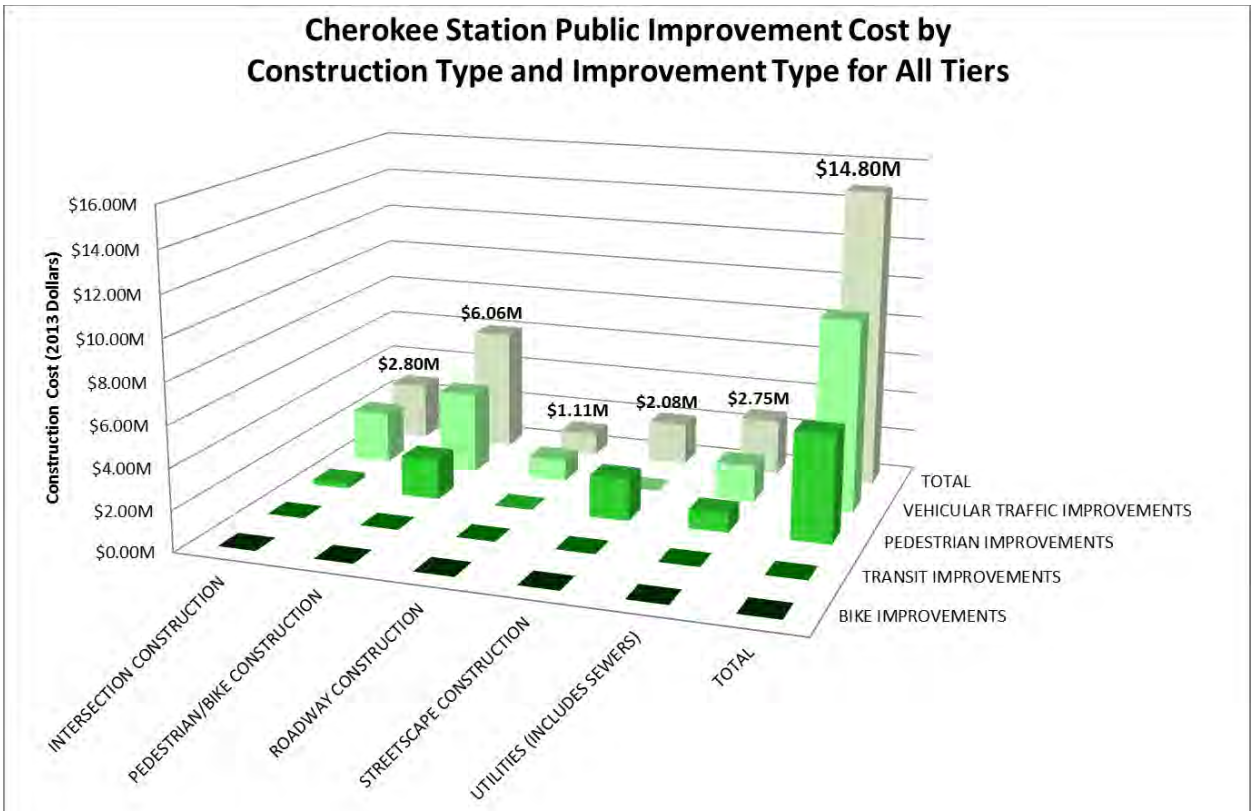
The total estimated public improvement cost for the Kingshighway TOD station is estimated to be $10 million in 2013 dollars and includes all tiers of improvements described in the Transportation Analysis of Area Plans prepared by Bernardin, Lochmueller & Associates (BLA)**.** Pedestrian improvements represent 73% of the total costs with pedestrian related construction being the primary cost followed by streetscape construction. Transit improvements have a low construction cost because the majority of the proposed improvements can be implemented without public improvements to infrastructure. A detailed cost breakdown, including assumption, is included as an attachment.



	INTERSECTION CONSTRUCTION	PEDESTRIAN/BIKE CONSTRUCTION	ROADWAY CONSTRUCTION	STREETSCAPE CONSTRUCTION	UTILITIES (INCLUDES SEWERS)	TOTAL
TRANSIT IMPROVEMENTS	$0.03M	$0.00M	$0.03M	$0.00M	$0.00M	$0.06M
BIKE IMPROVEMENTS	$0.26M	$0.45M	$0.24M	$0.00M	$0.20M	$1.15M
VEHICULAR TRAFFIC IMPROVEMENTS	$0.26M	$0.06M	$0.71M	$0.00M	$0.47M	$1.50M
PEDESTRIAN IMPROVEMENTS	$0.31M	$3.95M	$0.00M	$1.83M	$1.18M	$7.27M
TOTAL	$0.86M	$4.47M	$0.98M	$1.83M	$1.85M	$9.99M

Cherokee Station

The total estimated public improvement cost for the Cherokee TOD station is estimated to be $14.8 million in 2013 dollars and includes all tiers of improvements described in the Transportation Analysis of Area Plans prepared by Bernardin, Lochmueller & Associates (BLA)**.** Vehicular traffic improvements represent 64% of the total costs with pedestrian related construction being the primary cost followed by intersection construction. Transit improvements no construction cost because the proposed improvements can be implemented without public improvements to infrastructure. Also, Bike improvements have a low associated cost because the Cherokee Street corridor is located in a generally quiet, residential area that requires little improvement to accommodate cyclist. A detailed cost breakdown, including assumptions, is included as an attachment.



	INTERSECTION CONSTRUCTION	PEDESTRIAN/BIKE CONSTRUCTION	ROADWAY CONSTRUCTION	STREETSCAPE CONSTRUCTION	UTILITIES (INCLUDES SEWERS)	TOTAL
BIKE IMPROVEMENTS	$0.00M	$0.01M	$0.03M	$0.00M	$0.00M	$0.04M
TRANSIT IMPROVEMENTS	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M	$0.00M
PEDESTRIAN IMPROVEMENTS	$0.26M	$2.00M	$0.00M	$2.08M	$0.93M	$5.27M
VEHICULAR TRAFFIC IMPROVEMENTS	$2.54M	$4.05M	$1.08M	$0.00M	$1.82M	$9.49M
TOTAL	$2.80M	$6.06M	$1.11M	$2.08M	$2.75M	$14.80M

Attachment A

Kingshighway TOD Station Public Improvement

Construction Cost Estimate

TRANSPORTATION ORIENTED DEVELOPMENT
PLANNING LEVEL OPINION OF PROBABLE CONSTRUCTION COST
FOR PUBLIC IMPROVEMENTS
AT THE PROPOSED
KINGSHIGHWAY STATION

			INTERSECTION IMPROVEMENTS	PEDESTRIAN/BIKE IMPROVEMENTS	ROADWAY IMPROVEMENTS	STREETSCAPE IMPROVEMENTS	UTILITIES (INCLUDES SEWERS)	TIER TOTAL	AREA TOTAL	IMPROVEMENT TOTAL
PEDESTRIAN IMPROVEMENTS										$ 7,473,297.80
AREA "A"									$ 1,277,000.00	
	TIER 1	CONSTRUCT SIDEWALKS WITH AN EMPHASIS ON MAINTAINING A DIRECT ROUTE TO THE STATION	$ -	$ 555,750.00	$ -	$ -	$ 319,000.00	$ 874,750.00		
	TIER 2	CONSTRUCT A MULTI-USE PATH THROUGH THE DEVELOPMENT	$ -	$ 302,250.00	$ -	$ -	$ 100,000.00	$ 402,250.00		
AREA "B"									$ 5,674,325.00	
	TIER 1	WIDEN SIDEWALKS AND CONSTRUCT ADA-COMPLIANT RAMPS AT EACH INTERSECTION ALONG KINGSHIGHWAY WITHIN THE STATION AREA	$ -	$ 1,755,000.00	$ -	$ -	$ 673,425.00	$ 2,428,425.00		
	TIER 2	INSTALL A MULTI-USE TRAIL FOR PEDESTRIAN AND CYCLISTS WITHIN THE WIDE, LANDSCAPED MEDIAN OF KINGSHIGHWAY	$ -	$ 1,280,500.00	$ -	$ 35,750.00	$ 200,000.00	$ 1,516,250.00		
	TIER 3	[3] ENHANCE THE MULTI-USE PATH WITHIN THE MEDIAN OF KINGSHIGHWAY AS A LINEAR PARK WITH FEATURES ORIENTED TO PEDESTRIANS SUCH AS BENCHES, LIGHTING, AND AESTHETIC TREATMENTS	$ -	$ -	$ -	$ 1,729,650.00	$ -	$ 1,729,650.00		
AREA "C"									$ 521,972.80	
	TIER 1	INSTALL PEDESTRIAN CONTDOWN SIGNALS AND RESTRICT RIGHT TURNS ON RED	$ -	$ 31,200.00	$ -	$ -	$ 5,000.00	$ 36,200.00		
	TIER 2	INSTALL COLORED OR TEXTURED CROSSWALKS AND PEDESTRIAN-SCALE LIGHTING	$ -	$ 29,744.00	$ -	$ 62,400.00	$ 16,000.00	$ 108,144.00		
	TIER 3	INSTALL CURB BUMP-OUTS AND PEDESTRIAN REFUGE AREAS WITHIN THE MEDIAN OF KINGSHIGHWAY	$ 310,668.80	$ -	$ -	$ -	$ 66,960.00	$ 377,628.80		
BIKES										$ 1,154,912.00
AREA "A"									$ 197,730.00	
	TIER 1	DESIGNATE ST. LOUIS AVE. AS A SHARE-THE-ROAD BIKE ROUTE	$ -	$ 24,440.00	$ -	$ -	$ -	$ 24,440.00		
	TIER 2	ELIMINATE PARKING ALONG ST. LOUIS AVE. AND INSTALL DEDICATED BIKE LANES	$ -	$ 173,290.00	$ -	$ -	$ -	$ 173,290.00		
AREA "B"									$ -	
	TIER 1	[4] INSTALL A MULTI-USE TRAIL FOR PEDESTRIAN AND CYCLISTS WITHIN THE WIDE, LANDSCAPED MEDIAN OF KINGSHIGHWAY	$ -	$ -	$ -	$ -	$ -	$ -		
	TIER 2	[5] ENHANCE THE MULTI-USE PATH WITHIN THE MEDIAN OF KINGSHIGHWAY AS A LINEAR PARK WITH FEATURES ORIENTED TO PEDESTRIANS SUCH AS BENCHES, LIGHTING, AND AESTHETIC TREATMENTS	$ -	$ -	$ -	$ -	$ -	$ -		
AREA "C"									$ 957,182.00	
	TIER 1	REALIGN THE NORTH LEG OF EUCLID AVE. AT NATURAL BRIDGE OPPOSITE THE SOUTH LEG	$ 260,000.00	$ 256,880.00	$ 236,340.00	$ -	$ 203,962.00	$ 957,182.00		
TRANSIT										$ 61,750.00
AREA "A"									$ -	
	TIER 1	[6] INCREASE HEADWAYS TO 15 MINUTES	$ -	$ -	$ -	$ -	$ -	$ -		
	TIER 2	[6] INCREASE HEADWAYS TO 10 MINUTES	$ -	$ -	$ -	$ -	$ -	$ -		
AREA "B"									$ 61,750.00	
	TIER 1	CONVERT THE CURB LANE OF KINGSHIGHWAY AT NATURAL BRIDGE AVE. TO A BUS ONLY LANE	$ -	$ -	$ 29,250.00	$ -	$ -	$ 29,250.00		
	TIER 2	IMPLEMENT TRANSIT SIGNAL PRIORITY AT THE INTERSECTION IN FORM OF AN EARLY "QUEUE JUMP" SIGNAL THAT WOULD ALLOW BUSES TO PROCEED BEFORE OTHER VEHICLES PROVIDING AN OPPORTUNITY FOR THEM TO EASILY REJOIN NORMAL TRAFFIC LANES	$ 32,500.00	$ -	$ -	$ -	$ -	$ 32,500.00		
AREA "C"									$ -	
	TIER 1	[6] ELIMINATE THE #4 ROUTE ALTOGETHER	$ -	$ -	$ -	$ -	$ -	$ -		
VEHICULAR TRAFFIC										$ 1,495,216.00
AREA "A"									$ -	
	TIER 1	[6] WITHIN THE DEVELOPMENT, PROVIDE ACCESS TO MAJOR THOROUGHFARES	$ -	$ -	$ -	$ -	$ -	$ -		
AREA "B"									$ 738,016.00	
	TIER 1	REALIGN FARLIN AVE. TO CONNECT WITH MARGERATTA AVE. TO THE WEST	$ -	$ 57,330.00	$ 422,266.00	$ -	$ 258,420.00	$ 738,016.00		
AREA "C"									$ -	
	TIER 1	[6] MAINTAIN 2 LANES IN EACH DIRECTION ON NATURAL BRIDGE; MAINTAIN 3 LANES IN EACH DIRECTION ON KINGSHIGHWAY	$ -	$ -	$ -	$ -	$ -	$ -		
AREA "D"									$ 757,200.00	
	TIER 1	I-70/KINSHIGHWAY INTERCHANGE IMPROVEMENTS TO ACCOMMODATE TRAFFIC VOLUMES	$ 260,000.00	$ -	$ 288,600.00	$ -	$ 208,600.00	$ 757,200.00		
TOTALS			$ 863,168.80 8%	$ 4,466,384.00 44%	$ 976,456.00 10%	$ 1,827,800.00 18%	$ 2,051,367.00 20%			$ 10,185,175.80

NOTES:
[1] ALL COSTS ARE IN 2013 DOLLARS
[2] ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)
[3] TIER 3 IMPROVEMENTS BUILD ON TIER 2 IMPROVEMENTS OF PEDESTRIAN IMPROVEMENTS AREA "B"
[4] BIKE IMPROVEMENTS FOR AREA "B", TIER 2 ARE THE SAME AS FOR PEDESTRIAN IMPROVEMENTS, AREA "B", TIER 1
[5] BIKE IMPROVEMENTS FOR AREA "B", TIER 3 ARE THE SAME AS FOR PEDESTRIAN IMPROVEMENTS, AREA "B", TIER 2
[6] NO PUBLIC IMPROVEMENTS COSTS WITH THIS TIER
[7] COSTS DO NOT INCLUDE LAND ACQUISITION AND BUILDING DEMOLITION
[8] COST DO NOT INCLUDE SITE CONTAMINATION REMEDIATION

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PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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KINGSHIGHWAY

PEDESTRIAN IMPROVEMENTS - AREA "A", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 555,750.00	64%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 319,000.00	36%
TOTAL	$ 874,750.00	
ALL COSTS ARE IN 2013 DOLLARS		
ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)		

ASSUME NO LIGHTING, NO SIGNALIZATION

ASSUME PROPOSED SIDEWALK WIDTH = 6 FEET

ASSUME SIDEWALKS ALONG BOTH SIDES OF ROUTE

ASSUME CURB ON ONLY ONE SIDE OF SIDEWALK

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS											VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT		AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT		DEPTH	UNIT		CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	4500	$ 87,750.00	10.0%	AREA			0				0		8.5	FT	*	8.5	SF/LF	0.111111111	SY/SF	0.9	SY/LF	5000	FT	4500	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	2500	$ 32,500.00	3.7%	VOLUME			0				0					0				0				0		12.5	FT	*	1	FT	*	0.04	CY/SY	0.5	CY/LF	5000	FT	2500	CY
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, GRANITE	LF	0	$ 45.50	5000	$ 227,500.00	26.0%	LENGTH			0		5000	1	5000	LF				0				0				0										0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	3500	$ 182,000.00	20.8%	AREA			0				0		6	FT	*	6	SF/LF	0.111111111	SY/SF	0.7	SY/LF	5000	FT	3500	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	4000	$ 26,000.00	3.0%	AREA			0				0		7	FT	*	7	SF/LF	0.111111111	SY/SF	0.8	SY/LF	5000	FT	4000	SY									0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	32	$ 83,200.00	9.5%	PER EACH	4	8	32	EA			0					0				0				0										0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	16	$ 31,200.00	3.6%	PER EACH	2	8	16	EA			0					0				0				0										0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	600	$ 54,600.00	6.2%	LENGTH			0		75	8	600	LF				0				0				0										0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	150	$ 150,000.00	17.1%	PER EACH	6	25	150	EA			0					0				0				0										0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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KINGSHIGHWAY

PEDESTRIAN IMPROVEMENTS - AREA "A", TIER 2

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 302,250.00	75%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 100,000.00	25%
TOTAL	$ 402,250.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUME THAT ALL IMPROVEMENTS ARE INDEPENDENT OF PEDESTRIAN IMPROVEMENTS FOR AREA "A", TIER 1

ASSUME NO STREETSCAPE IMPROVEMENTS, NO DRAINAGE IMPROVEMENTS, NO LIGHTING.

ASSUME PROPOSED TRAIL WIDTH = 10 FEET

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS											VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT		AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT		DEPTH	UNIT		CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	3500	$ 68,250.00	17.0%	AREA			0				0		13	FT	*	13	SF/LF	0.111111111	SY/SF	1.4	SY/LF	2500	FT	3500	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	1250	$ 16,250.00	4.0%	VOLUME			0				0					0				0				0		13	FT	*	1	FT	*	0.04	CY/SY	0.5	CY/LF	2500	FT	1250	CY
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, CONCRETE	LF	0	$ 28.60	2500	$ 71,500.00	17.8%	LENGTH			0		2500	1	2500	LF				0				0				0										0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT, ASPHALT MULTI-USE TRAIL, 6-INCHES THICK	SY	1	$ 45.50	2750	$ 125,125.00	31.1%	AREA			0				0		10	FT	*	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	2500	FT	2750	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	3250	$ 21,125.00	5.3%	AREA			0				0		12	FT	*	12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	2500	FT	3250	SY									0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	100	$ 100,000.00	24.9%	PER EACH	4	25	100	EA			0					0				0				0										0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0					0				#N/A				#N/A										#N/A				#N/A	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

KINGSHIGHWAY

PEDESTRIAN IMPROVEMENTS - AREA "B", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 1,755,000.00	72%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 673,425.00	28%
TOTAL	$ 2,428,425.00	
ALL COSTS ARE IN 2013 DOLLARS		
ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)		

ASSUME CURB ON ONLY ONE SIDE OF SIDEWALK

ASSUME PROPOSED SIDEWALK WIDTH = 10 FEET

ASSUME SIDEWALKS ALONG BOTH SIDES OF ROUTE

NOTE:

* ASSUMED

CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	PER EACH CALCULATIONS: NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH CALCULATIONS: LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	14000	$ 273,000.00	11.2%	AREA			0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	5000	$ 65,000.00	2.7%	VOLUME			0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, GRANITE	LF	0	$ 45.50	10000	$ 455,000.00	18.7%	LENGTH			0		10000	1	10000	LF
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	11000	$ 572,000.00	23.6%	AREA			0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	12000	$ 78,000.00	3.2%	AREA			0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIGNALIZATION, PEDESTRIAN	EA	0	$ 3,900.00	80	$ 312,000.00	12.8%	PER EACH	8	10	80	EA			0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	72	$ 187,200.00	7.7%	PER EACH	4	18	72	EA			0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	36	$ 70,200.00	2.9%	PER EACH	2	18	36	EA			0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	1275	$ 116,025.00	4.8%	LENGTH			0		75	17	1275	LF
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	300	$ 300,000.00	12.4%	PER EACH	6	50	300	EA			0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0	

CLASS	ITEM	AREA CALCULATIONS: WIDTH	UNIT		AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	VOLUME CALCULATIONS: WIDTH	UNIT		DEPTH	UNIT		CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	12.5	FT	*	12.5	SF/LF	0.111111111	SY/SF	1.4	SY/LF	10000	FT	14000	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK				0				0				0		12.5	FT	*	1	FT	*	0.04	CY/SY	0.5	CY/LF	10000	FT	5000	CY
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, GRANITE				0				0				0										0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	10	FT	*	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	10000	FT	11000	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	11	FT	*	11	SF/LF	0.111111111	SY/SF	1.2	SY/LF	10000	FT	12000	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIGNALIZATION, PEDESTRIAN				0				0				0										0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM				0				0				0										0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM				0				0				0										0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)				0				0				0										0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS				0				0				0										0				0	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	
					0				#N/A				#N/A										#N/A				#N/A	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
PEDESTRIAN IMPROVEMENTS - AREA "B", TIER 2
BIKE IMPROVEMENTS - AREA "B", TIER 1

REV. 0 - 6/26/2013 MSM

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 1,280,500.00	84%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ 35,750.00	2%
UTILITIES (INCLUDES SEWERS)	$ 200,000.00	13%
TOTAL	$ 1,516,250.00	
ALL COSTS ARE IN 2013 DOLLARS		
ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)		

ASSUME PROPOSED TRAIL WIDTH = 10 FEET
ASSUME CONC. SIDEWALK ON EACH SIDE WITH WIDTH = 4 FEET
ASSUME SOD AREA ON EACH SIDE WITH WIDTH = 5 FEET
ASSUME NO MODIFICATIONS OR ADDITIONS TO STORMSEWER SYSTEM

NOTE:
* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT		AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT		DEPTH	UNIT		CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	15500	$ 302,250.00	19.9%	AREA			0				0		28	FT	*	28	SF/LF	0.111111111	SY/SF	3.1	SY/LF	5000	FT	15500	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CURBS	LF	0	$ 10.40	10000	$ 104,000.00	6.9%	LENGTH			0		5000	2	10000	LF				0				0				0										0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	2500	$ 32,500.00	2.1%	VOLUME			0				0					0				0				0		13	FT	*	1	FT	*	0.04	CY/SY	0.5	CY/LF	5000	FT	2500	CY
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, CONCRETE	LF	0	$ 28.60	10000	$ 286,000.00	18.9%	LENGTH			0		5000	2	10000	LF				0				0				0										0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT, ASPHALT MULTI-USE TRAIL, 6-INCHES THICK	SY	1	$ 45.50	5500	$ 250,250.00	16.5%	AREA			0				0		10	FT	*	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	5000	FT	5500	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	4500	$ 234,000.00	15.4%	AREA			0				0		8	FT	*	8	SF/LF	0.111111111	SY/SF	0.9	SY/LF	5000	FT	4500	SY									0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	11000	$ 71,500.00	4.7%	AREA			0				0		20	FT	*	20	SF/LF	0.111111111	SY/SF	2.2	SY/LF	5000	FT	11000	SY									0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

KINGSHIGHWAY
PEDESTRIAN IMPROVEMENTS - AREA "B", TIER 3
BIKE IMPROVEMENTS - AREA "B", TIER 2

THIS PHASE IS AN ADDITION TO PEDESTRIAN IMPROVEMENTS, AREA "B", TIER 2

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ 1,729,650.00	100%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 1,729,650.00	
ALL COSTS ARE IN 2013 DOLLARS		
ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)		

ASSUMPTIONS:

BENCHES @	200	FT OC
LIGHTS @	75	FT OC
TREES @	75	FT OC
TRASH RECIPTICALS @	200	FT OC

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
STREETSCAPE IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	134	$ 1,045,200.00	60.4%	PER EACH	2	67	134	EA			0				0				0				0								0				0	
STREETSCAPE IMPROVEMENTS	TREES AND GRATES	EA	0	$ 4,550.00	134	$ 609,700.00	35.2%	PER EACH	2	67	134	EA			0				0				0				0								0				0	
STREETSCAPE IMPROVEMENTS	BENCHES	EA	0	$ 1,300.00	50	$ 65,000.00	3.8%	PER EACH	2	25	50	EA			0				0				0				0								0				0	
STREETSCAPE IMPROVEMENTS	TRASH RECIPTICALS	EA	0	$ 390.00	25	$ 9,750.00	0.6%	PER EACH	1	25	25	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
PEDESTRIAN IMPROVEMENTS - AREA "C", TIER 1

REV. 0 - 6/26/2013 MSM

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 31,200.00	86%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 5,000.00	14%
TOTAL	$ 36,200.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	SIGNALIZATION, PEDESTRIAN	EA	0	$ 3,900.00	8	$ 31,200.00	86.2%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	LS	0	$ 5,000.00	1	$ 5,000.00	13.8%				0				0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
PEDESTRIAN IMPROVEMENTS - AREA "C", TIER 2

REV. 0 - 6/26/2013 MSM

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 29,744.00	28%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ 62,400.00	58%
UTILITIES (INCLUDES SEWERS)	$ 16,000.00	15%
TOTAL	$ 108,144.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

CROSS WALK WIDTH =	10	FT
CROSS WALK LENGTH =	100	FT

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
STREETSCAPE IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	8	$ 62,400.00	57.7%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	ROTOMILL, ASPHALT SURFACE, 2-INCH DEPTH	SY	1	$ 2.60	440	$ 1,144.00	1.1%	AREA			0				0		10	FT	10	SF/FT	0.111111111		1.1	SY/FT	400	FT	440	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT, ASPHALT, COLORED W/ STAMPED PATTERN, 2-INCHES THICK	SY	1	$ 65.00	440	$ 28,600.00	26.4%	AREA			0				0		10	FT	10	SF/FT	0.111111111		1.1	SY/FT	400	FT	440	SY							0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	16	$ 16,000.00	14.8%	PER EACH	4	4	16	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
PEDESTRIAN IMPROVEMENTS - AREA "C", TIER 3

REV. 0 - 6/26/2013 MSM

ASSUMPTIONS:

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 310,668.80	82%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 66,960.00	18%
TOTAL	$ 377,628.80	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
INTERSECTION IMPROVEMENTS	INTERSECTION BUMP-OUT (COMPLETE, IN-PLACE)	EA	0	$ 12,667.20	4	$ 50,668.80	13.4%	PER EACH	1	4	4	EA			0				0				0				0								0				0	
INTERSECTION IMPROVEMENTS	SIGNALIZATION (COMPLETE INTERSECTION)	EA	0	$ 260,000.00	1	$ 260,000.00	68.9%	PER EACH	1	1	1	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	8	$ 20,800.00	5.5%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	8	$ 15,600.00	4.1%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	160	$ 14,560.00	3.9%	LENGTH			0		20	8	160	FT			0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	16	$ 16,000.00	4.2%	PER EACH	4	4	16	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

KINGSHIGHWAY

BIKE IMPROVEMENTS - AREA "A", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 24,440.00	100%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 24,440.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

"SHARROW" SPACING = 200 FT

SIGN SPACING = 600 FT

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT MARKINGS, SHARE THE ROAD "SHARROW" ARROW SYMBOL	EA	0	$ 260.00	70	$ 18,200.00	74.5%	PER EACH	35	2	70	EA			0				0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIGN (INCLUDES MOUNTING)	EA	0	$ 260.00	24	$ 6,240.00	25.5%	PER EACH	12	2	24	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

KINGSHIGHWAY

BIKE IMPROVEMENTS - AREA "A", TIER 2

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 173,290.00	100%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 173,290.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

PARKING/BIKE LANE WIDTH = 10 FT

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	ROTOMILL, ASPHALT SURFACE, 2-INCH DEPTH	SY	1	$ 2.60	7700	$ 20,020.00	11.6%	AREA			0				0		10	FT	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	7000	LF	7700	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	RESURFACE PAVEMENT, ASPHALT, 2-INCH DEPTH	SY	1	$ 19.50	7700	$ 150,150.00	86.6%	AREA			0				0		10	FT	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	7000	LF	7700	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT MARKINGS, 4" WIDE STRIPE	LF	0	$ 0.26	12000	$ 3,120.00	1.8%	LENGTH			0		300	40	12000	LF			0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

KINGSHIGHWAY

BIKE IMPROVEMENTS - AREA "C", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 260,000.00	27%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 256,880.00	27%
ROADWAY IMPROVEMENTS	$ 236,340.00	25%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 203,962.00	21%
TOTAL	$ 957,182.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

PROPOSED ROAD WIDTH = 44 FT

PROP. SIDEWALK WIDTH = 6 FT

STREET LIGHTS SPACING = 75 FT

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
ROADWAY IMPROVEMENTS	REMOVAL OF ASPHALT PAVEMENT	SY	1	$ 14.30	2200	$ 31,460.00	3.3%	AREA			0				0		40	FT	40	SF/LF	0.111111111	SY/SF	4.4	SY/LF	500	FT	2200	SY							0				0	
ROADWAY IMPROVEMENTS	REMOVAL OF CURBS	LF	0	$ 10.40	1000	$ 10,400.00	1.1%	LENGTH			0		500	2	1000	FT			0				0				0								0				0	
ROADWAY IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	1750	$ 22,750.00	2.4%	VOLUME			0				0				0				0				0		47	FT	2	FT	0.04	CY/CF	3.5	CY/LF	500	LF	1750	CY
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	350	$ 4,550.00	0.5%	VOLUME			0				0				0				0				0		18	FT	1	FT	0.04	CY/CF	0.7	CY/LF	500	LF	350	CY
ROADWAY IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	2600	$ 16,900.00	1.8%	AREA			0				0		47	FT	47	SF/LF	0.111111111	SY/SF	5.2	SY/LF	500	FT	2600	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	0	$ -	0.0%	AREA			0				0		12	FT	12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	0	FT	0	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT, ASPHALT ROADWAY, 10-INCHES THICK	SY	1	$ 62.40	2450	$ 152,880.00	16.0%	AREA			0				0		44	FT	44	SF/LF	0.111111111	SY/SF	4.9	SY/LF	500	FT	2450	SY							0				0	
ROADWAY IMPROVEMENTS	CURB, GRANITE	LF	0	$ 45.50	1000	$ 45,500.00	4.8%	LENGTH			0		500	2	1000	FT			0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	650	$ 33,800.00	3.5%	AREA			0				0		12	FT	12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	500	FT	650	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SOD	SY	1	$ 6.50	5300	$ 34,450.00	3.6%	AREA			0				0		95	FT	95	SF/LF	0.111111111	SY/SF	10.6	SY/LF	500	FT	5300	SY							0				0	
ROADWAY IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	14	$ 109,200.00	11.4%	PER EACH	7	2	14	EA			0				0				0				0								0				0	
INTERSECTION IMPROVEMENTS	SIGNALIZATION (COMPLETE INTERSECTION)	EA	0	$ 260,000.00	1	$ 260,000.00	27.2%	PER EACH	1	1	1				0				0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIGNALIZATION, PEDESTRIAN	EA	0	$ 3,900.00	8	$ 31,200.00	3.3%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
ROADWAY IMPROVEMENTS	PAVEMENT MARKINGS, 4" WIDE STRIPE	LF	0	$ 0.26	500	$ 130.00	0.0%	LENGTH			0		500	1	500	LF			0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	6	$ 15,600.00	1.6%	PER EACH	2	3	6	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	3	$ 5,850.00	0.6%	PER EACH	1	3	3	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	632	$ 57,512.00	6.0%	LENGTH			0	EA	632	1	632	LF			0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	125	$ 125,000.00	13.1%	PER EACH	25	5	125	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
TRANSIT IMPROVEMENTS - AREA "B", TIER 1

ASSUMPTIONS:

REV. 0 - 6/26/2013 MSM

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ 29,250.00	100%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 29,250.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
ROADWAY IMPROVEMENTS	PAVEMENT MARKING REMOVAL, 4-INCH WIDE	LF	0	$ 5.20	2500	$ 13,000.00	44.4%	LENGTH			0		10	250	2500				0				0				0								0				0	
ROADWAY IMPROVEMENTS	PAVEMENT MARKINGS, 4" WIDE STRIPE	LF	0	$ 0.26	10000	$ 2,600.00	8.9%	LENGTH			0		2	5000	10000				0				0				0								0				0	
ROADWAY IMPROVEMENTS	PAVEMENT MARKINGS, "BUS LANE ONLY" WORDS	EA	0	$ 325.00	34	$ 11,050.00	37.8%	PER EACH	1	34	34				0				0				0				0								0				0	
ROADWAY IMPROVEMENTS	SIGN (INCLUDES MOUNTING)	EA	0	$ 260.00	10	$ 2,600.00	8.9%	PER EACH	1	10	10				0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
TRANSIT IMPROVEMENTS - AREA "B", TIER 2

ASSUMPTIONS:

REV. 0 - 6/26/2013 MSM

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 32,500.00	100%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 32,500.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
INTERSECTION IMPROVEMENTS	MODIFY EXISTING SIGNAL	EA	0	$ 32,500.00	1	$ 32,500.00	100.0%	PER EACH	1	1	1				0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
VEHICULAR TRAFFIC IMPROVEMENTS - AREA "B", TIER 1

REV. 0 - 6/26/2013 MSM

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 57,330.00	8%
ROADWAY IMPROVEMENTS	$ 422,266.00	57%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 258,420.00	35%
TOTAL	$ 738,016.00	

ALL COSTS ARE IN 2013 DOLLARS
ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

LANE WIDTH = 12 FT
NO. OF LANES = 2
SIDWALK WIDTH = 6 FT

COST DO NOT INCLUDE LAND PURCHASE OR BUILDING DEMOLITION
COSTS DO NOT SITE REMEDIATION

NOTE:
* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
ROADWAY IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	4300	$ 83,850.00	11.4%	AREA			0				0		39	FT	39	SF/LF	0.111111111	SY/SF	4.3	SY/LF	1000	LF	4300	SY							0				0	
ROADWAY IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	2030	$ 26,390.00	3.6%	VOLUME			0				0				0				0				0		39	FT	2	FT	* 0.04	CY/CF	2.9	CY/LF	700	LF	2030	CY
ROADWAY IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	2100	$ 13,650.00	1.8%	AREA			0				0		27	FT	27	SF/LF	0.111111111	SY/SF	3	SY/LF	700	LF	2100	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	980	$ 6,370.00	0.9%	AREA			0				0		6	FT	6	SF/LF	0.111111111	SY/SF	0.7	SY/LF	1400	LF	980	SY							0				0	
ROADWAY IMPROVEMENTS	CURB, CONCRETE	LF	0	$ 28.60	1400	$ 40,040.00	5.4%	LENGTH			0		700	2	1400	LF			0				0				0								0				0	
ROADWAY IMPROVEMENTS	PAVEMENT, ASPHALT ROADWAY, 10-INCHES THICK	SY	1	$ 62.40	1890	$ 117,936.00	16.0%	AREA			0				0		24	FT	24	SF/LF	0.111111111	SY/SF	2.7	SF/LF	700	LF	1890	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	980	$ 50,960.00	6.9%	AREA			0				0		6	FT	6	SF/LF	0.111111111	SY/SF	0.7	SF/LF	1400	LF	980	SY							0				0	
ROADWAY IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	18	$ 140,400.00	19.0%	PER EACH	2	9	18	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	10	$ 26,000.00	3.5%	PER EACH	2	5	10	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	4	$ 7,800.00	1.1%	PER EACH	1	4	4	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	820	$ 74,620.00	10.1%	LENGTH			0		1	820	820				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	LS	0	$ 150,000.00	1	$ 150,000.00	20.3%				0				0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

KINGSHIGHWAY
VEHICULAR TRAFFIC IMPROVEMENTS - AREA "D", TIER 1

REV. 0 - 6/26/2013 MSM

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 260,000.00	34%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ 288,600.00	38%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 208,600.00	28%
TOTAL	$ 757,200.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

RAMP/TURN LANE WIDTH = 14 FT

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT		CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
INTERSECTION IMPROVEMENTS	SIGNALIZATION (COMPLETE INTERSECTION)	EA	0	$ 260,000.00	1	$ 260,000.00	34.3%	PER EACH	1	1	1	EA			0				0				0				0									0				0	
ROADWAY IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	2800	$ 36,400.00	4.8%	VOLUME			0				0				0				0				0		15	LF	2.5	FT	*	0.04	CY/CF	1.4	CY/LF	2000	LF	2800	CY
ROADWAY IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	3400	$ 22,100.00	2.9%	AREA			0				0		15	LF	15	SF/LF	0.111111111	SY/SF	1.7	SY/LF	2000	LF	3400	SY								0				0	
ROADWAY IMPROVEMENTS	PAVEMENT, CONCRETE, NON-REINFORCED, 15-FT JOINTS, 9-INCHES THICK	SY	1	$ 71.50	3200	$ 228,800.00	30.2%	AREA			0				0		14	LF	14	SF/LF	0.111111111	SY/SF	1.6	SY/LF	2000	LF	3200	SY								0				0	
ROADWAY IMPROVEMENTS	PAVEMENT MARKINGS, 4" WIDE STRIPE	LF	0	$ 0.26	5000	$ 1,300.00	0.2%	LENGTH			0		5000	1	5000	LF			0				0				0									0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	8	$ 20,800.00	2.7%	PER EACH	2	4	8	EA			0				0				0				0									0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	10	$ 19,500.00	2.6%	PER EACH	1	10	10	EA			0				0				0				0									0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	1300	$ 118,300.00	15.6%	LENGTH			0		1300	1	1300	LF			0				0				0									0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	50	$ 50,000.00	6.6%	PER EACH	1	50	50	EA			0				0				0				0									0				0	

MASTER PAY ITEM LIST

ITEM	UNITS	ACCURACY	UNIT COST	RAW COST (2013)	MOBILIZATION	CONTINGENCY	DESCRIPTION/NOTES
AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	$ 5.00	$ 0.25	$ 1.25	
BENCHES	EA	0	$ 1,300.00	$ 1,000.00	$ 50.00	$ 250.00	
CURB, CONCRETE	LF	0	$ 28.60	$ 22.00	$ 1.10	$ 5.50	
CURB, GRANITE	LF	0	$ 45.50	$ 35.00	$ 1.75	$ 8.75	
EARTHWORK	CY	1	$ 13.00	$ 10.00	$ 0.50	$ 2.50	
INLET, STORM	EA	0	$ 2,600.00	$ 2,000.00	$ 100.00	$ 500.00	
INTERSECTION BUMP-OUT (COMPLETE, IN-PLACE)	EA	0	$ 12,667.20		$ -	$ -	
MANHOLE, STORM	EA	0	$ 1,950.00	$ 1,500.00	$ 75.00	$ 375.00	
MEDIAN, CONCRETE, 6-INCHES HIGH	SY	1	$ 71.50	$ 55.00	$ 2.75	$ 13.75	
MODIFY EXISTING SIGNAL	EA		$ 32,500.00	$ 25,000.00	$ 1,250.00	$ 6,250.00	
PAVEMENT MARKING REMOVAL, 4-INCH WIDE	LF	0	$ 5.20	$ 4.00	$ 0.20	$ 1.00	
PAVEMENT MARKINGS, "BUS LANE ONLY" WORDS	EA		$ 325.00	$ 250.00	$ 12.50	$ 62.50	
PAVEMENT MARKINGS, 4" WIDE STRIPE	LF	0	$ 0.26	$ 0.20	$ 0.01	$ 0.05	
PAVEMENT MARKINGS, BIKE BOX	EA	0	$ 1,040.00	$ 800.00	$ 40.00	$ 200.00	
PAVEMENT MARKINGS, SHARE THE ROAD "SHARROW" ARROW SYMBOL	EA	0	$ 260.00	$ 200.00	$ 10.00	$ 50.00	
PAVEMENT, ASPHALT MULTI-USE TRAIL, 6-INCHES THICK	SY	1	$ 45.50	$ 35.00	$ 1.75	$ 8.75	
PAVEMENT, ASPHALT ROADWAY, 10-INCHES THICK	SY	1	$ 62.40	$ 48.00	$ 2.40	$ 12.00	
PAVEMENT, ASPHALT, COLORED W/ STAMPED PATTERN, 2-INCHES THICK	SY	1	$ 65.00	$ 50.00	$ 2.50	$ 12.50	
PAVEMENT, CONCRETE, NON-REINFORCED, 15-FT JOINTS, 9-INCHES THICK	SY	1	$ 71.50	$ 55.00	$ 2.75	$ 13.75	
PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	$ 70.00	$ 3.50	$ 17.50	
REMOVAL OF ASPHALT PAVEMENT	SY	1	$ 14.30	$ 11.00	$ 0.55	$ 2.75	
REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	$ 15.00	$ 0.75	$ 3.75	
REMOVAL OF CURBS	LF	0	$ 10.40	$ 8.00	$ 0.40	$ 2.00	
RESURFACE PAVEMENT, ASPHALT, 2-INCH DEPTH	SY	1	$ 19.50	$ 15.00	$ 0.75	$ 3.75	
ROTOMILL, ASPHALT SURFACE, 2-INCH DEPTH	SY	1	$ 2.60	$ 2.00	$ 0.10	$ 0.50	
SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	$ 40.00	$ 2.00	$ 10.00	
SIGN (INCLUDES MOUNTING)	EA	0	$ 260.00	$ 200.00	$ 10.00	$ 50.00	
SIGNALIZATION (COMPLETE INTERSECTION)	EA	0	$ 260,000.00	$ 200,000.00	$ 10,000.00	$ 50,000.00	
SIGNALIZATION, PEDESTRIAN	EA	0	$ 3,900.00	$ 3,000.00	$ 150.00	$ 750.00	
SOD	SY	1	$ 6.50	$ 5.00	$ 0.25	$ 1.25	
STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	$ 6,000.00	$ 300.00	$ 1,500.00	
TRASH RECIPTICALS	EA	0	$ 390.00	$ 300.00	$ 15.00	$ 75.00	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

INTERSECTION BUMP-OUT ESTIMATED COST

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 12,667.20	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

COST INCLUDES REMOVALS.

COST INCLUDES ROADWAY, SIDEWALK AND CURB.

COST DOES NOT INCLUDE LIGHTING, SIGNALS OR UTILITIES.

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
	REMOVAL OF CURBS	LF	0	$ 10.40	56	$ 582.40	4.6%	LENGTH			0				56	FT			0				0				0								0				0	
	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	54	$ 1,053.00	8.3%	AREA			0				0				0				0				54	SY							0				0	
	REMOVAL OF ASPHALT PAVEMENT	SY	1	$ 14.30	61	$ 872.30	6.9%	AREA			0				0				0				0				61	SY							0				0	
	CURB, GRANITE	LF	0	$ 45.50	80	$ 3,640.00	28.7%	LENGTH			0				80	FT			0				0				0								0				0	
	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	111	$ 5,772.00	45.6%	AREA			0				0				0				0				111	SY							0				0	
	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	115	$ 747.50	5.9%	AREA			0				0				0				0				115	SY							0				0	

Attachment B

Chrokee TOD Station Public Improvement

Construction Cost Estimate

TRANSPORTATION ORIENTED DEVELOPMENT
PLANNING LEVEL OPINION OF PROBABLE CONSTRUCTION COST
FOR PUBLIC IMPROVEMENTS
AT THE PROPOSED
CHEROKEE STATION

				INTERSECTION IMPROVEMENTS	PEDESTRIAN/BIKE IMPROVEMENTS	ROADWAY IMPROVEMENTS	STREETSCAPE IMPROVEMENTS	UTILITIES (INCLUDES SEWERS)	TIER TOTAL	AREA TOTAL	IMPROVEMENT TOTAL
PEDESTRIAN IMPROVEMENTS											$ 5,268,073.60
AREA "A"										$ 3,995,880.00	
	TIER 1		REPLACE SIDEWALKS AND CONSTRUCT ADA-COMPLIANT RAMPS AT INTERSECTIONS	$ -	$ 1,170,000.00	$ -	$ -	$ 748,480.00	$ 1,918,480.00		
	TIER 2	[3]	ADD LANDSCAPING, STREET FUNITURE, AND STREET LIGHTS	$ -	$ -	$ -	$ 2,077,400.00	$ -	$ 2,077,400.00		
AREA "B"										$ 499,443.60	
	TIER 1		INSTALL PEDESTRIAN CONTDOWN SIGNALS AND RESTRICT RIGHT TURNS ON RED	$ -	$ 31,200.00	$ -	$ -	$ -	$ 31,200.00		
	TIER 2		INSTALL COLORED OR TEXTURED CROSSWALKS AND PEDESTRIAN-SCALE LIGHTING	$ -	$ 79,502.80	$ -	$ -	$ -	$ 79,502.80		
	TIER 3	[4]	INSTALL CURB BUMP-OUTS & IMPROVE/SIGNALIZE INTERSECTION	$ 260,000.00	$ 50,668.80	$ -	$ -	$ 78,072.00	$ 388,740.80		
AREA "C"										$ 772,750.00	
	TIER 1		WIDEN SIDEWALKS	$ -	$ 672,750.00	$ -	$ -	$ 100,000.00	$ 772,750.00		
AREA "D"										$ -	
	TIER 1	[6]	MAINTAIN SIDEWALKS AND UPGRADE CURB RAMPS WITH ROADWAY PROJECTS	$ -	$ -	$ -	$ -	$ -	$ -		
BIKES											$ 36,784.80
AREA "A"										$ -	
	TIER 1	[6]	EXISTING BIKE ROUTE IS ACCEPTABLE - NO IMPROVEMENTS WITHIN THE STATION RADIUS	$ -	$ -	$ -	$ -	$ -	$ -		
AREA "B"										$ 36,784.80	
	TIER 1		INSTALL "BIKE BOX" PAVEMENT MARKINGS AT INTERSECTION OF CHEROKEE AND JEFFERSON	$ -	$ 8,320.00	$ 28,464.80	$ -	$ -	$ 36,784.80		
TRANSIT											$ -
AREA "A"										$ -	
	TIER 1	[6]	INCREASE HEADWAYS TO 15 MINUTES	$ -	$ -	$ -	$ -	$ -	$ -		
	TIER 2	[6]	INCREASE HEADWAYS TO 10 MINUTES	$ -	$ -	$ -	$ -	$ -	$ -		
AREA "B"										$ -	
	TIER 1	[6]	MODIFY THE #11 BUS LINE SERVICE	$ -	$ -	$ -	$ -	$ -	$ -		
VEHICULAR TRAFFIC											$ 9,494,026.50
AREA "A"										$ 6,067,524.00	
	TIER 1	[5]	CONSTRUCT A "ROAD DIET" ON JEFFERSON TO REDUCE THROUGH LANES TO ONE IN EACH DIRECTION	$ 1,456,000.00	$ 3,714,464.00	$ -	$ -	$ 897,060.00	$ 6,067,524.00		
AREA "B"										$ 720,903.50	
	TIER 1		CONSTRUCT A ROUNDABOUT AT CHEROKEE AND I-55 SOUTHBOUND ON-RAMP	$ 421,843.50	$ 34,060.00	$ -	$ -	$ 265,000.00	$ 720,903.50		
AREA "C"										$ 1,072,303.00	
	TIER 1		CONSTRUCT A ROUNDABOUT AT BROADWAY AND UTAH	$ 665,353.00	$ 55,900.00	$ -	$ -	$ 351,050.00	$ 1,072,303.00		
AREA "D"										$ -	
	TIER 1	[6]	RESTRICT TRAFFIC FLOW INHIBITING TREATMENTS FROM BEING IMPLEMENTED ALONG LEMP AVE BETWEEN CHEORKEE ST AND ARSENAL ST.	$ -	$ -	$ -	$ -	$ -	$ -		
AREA "E"										$ 1,633,296.00	
	TIER 1		EXTEND PRESIDENT ST., 18TH ST., AND DEMENIL PLACE AS LOCAL STREETS WITHIN THE LEMP MIXED-USE DEVELOPMENT	$ -	$ 243,360.00	$ 1,081,392.00	$ -	$ 308,544.00	$ 1,633,296.00		
TOTALS				$ 2,803,196.50 19%	$ 6,060,225.60 41%	$ 1,109,856.80 7%	$ 2,077,400.00 14%	$ 2,748,206.00 19%			$ 14,798,884.90

NOTES:

[1] ALL COSTS ARE IN 2013 DOLLARS
[2] ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)
[3] TIER 2 IMPROVEMENTS BUILD ON TIER 1 IMPROVEMENTS OF PEDESTRIAN IMPROVEMENTS AREA "A"
[4] TIER 3 IMPROVEMENTS BUILD ON TIER 1 IMPROVEMENTS OF PEDESRIAN IMPROVEMENTS AREA "B"
[5] PEDESTRIAN IMPROVEMENTS FOR AREA "C", TIER 1 ARE ASSUMED TO BE COMPLETED
[6] NO PUBLIC IMPROVEMENTS COSTS WITH THIS TIER
[7] COSTS DO NOT INCLUDE LAND ACQUISITION AND BUILDING DEMOLITION
[8] COST DO NOT INCLUDE SITE CONTAMINATION REMEDIATION

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PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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CHEROKEE

PEDESTRIAN IMPROVEMENTS - AREA "A", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 1,170,000.00	61%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 748,480.00	39%
TOTAL	$ 1,918,480.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

SIDEWALK WIDTH = 10 FEET

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	13200	$ 257,400.00	13.4%	AREA			0				0		10	FT	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	12000	LF	13200	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CURBS	LF	0	$ 10.40	12000	$ 124,800.00	6.5%	LENGTH			0		6000	2	12000	LF			0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	15600	$ 101,400.00	5.3%	AREA			0				0		11.5	FT	11.5	SF/LF	0.111111111	SY/SF	1.3	SY/LF	12000	LF	15600	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	13200	$ 686,400.00	35.8%	AREA			0				0		10	FT	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	12000	LF	13200	SY							0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	96	$ 249,600.00	13.0%	PER EACH	6	16	96	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	32	$ 62,400.00	3.3%	PER EACH	2	16	32	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	1280	$ 116,480.00	6.1%	LENGTH			0		40	32	1280	LF			0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	0	0	$ 1,000.00	320	$ 320,000.00	16.7%	PER EACH	20	16	320	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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CHEROKEE

PEDESTRIAN IMPROVEMENTS - AREA "A", TIER 2

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ 2,077,400.00	100%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 2,077,400.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

PEDESTRIAN IMPROVEMENTS AREA "A", TIER 1 HAVE BEEN CONSTRUCTED

STREET LIGHT SPACING = 75 FT

STREET TREE SPACING = 75 FT

BENCH SPACING = 200 FT

TRASH RECEPTACLE SPACING = 200 FT

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
STREETSCAPE IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	160	$ 1,248,000.00	60.1%	PER EACH	1	160	160				0				0				0				0								0				0	
STREETSCAPE IMPROVEMENTS	TREES AND GRATES	EA	0	$ 4,550.00	160	$ 728,000.00	35.0%	PER EACH	1	160	160				0				0				0				0								0				0	
STREETSCAPE IMPROVEMENTS	BENCHES	EA	0	$ 1,300.00	60	$ 78,000.00	3.8%	PER EACH	1	60	60				0				0				0				0								0				0	
STREETSCAPE IMPROVEMENTS	TRASH RECIPTICALS	EA	0	$ 390.00	60	$ 23,400.00	1.1%	PER EACH	1	60	60				0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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CHEROKEE

PEDESTRIAN IMPROVEMENTS - AREA "B", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 31,200.00	100%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 31,200.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	SIGNALIZATION, PEDESTRIAN	EA	0	$ 3,900.00	8	$ 31,200.00	100.0%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	
		#N/A	#N/A	#N/A		#N/A	#N/A				0				0				0				#N/A				#N/A								#N/A				#N/A	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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CHEROKEE

PEDESTRIAN IMPROVEMENTS - AREA "B", TIER 2

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 79,502.80	100%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 79,502.80	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

CROSS WALK WIDTH = 10 FEET

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	8	$ 62,400.00	78.5%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	ROTOMILL, ASPHALT SURFACE, 2-INCH DEPTH	SY	1	$ 2.60	253	$ 657.80	0.8%	AREA			0				0		10	FT	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	230	LF	253	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT, ASPHALT, COLORED W/ STAMPED PATTERN, 2-INCHES THICK	SY	1	$ 65.00	253	$ 16,445.00	20.7%	AREA			0				0		10	FT	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	230	LF	253	SY							0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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CHEROKEE

PEDESTRIAN IMPROVEMENTS - AREA "B", TIER 3

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 260,000.00	67%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 50,668.80	13%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 78,072.00	20%
TOTAL	$ 388,740.80	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	INTERSECTION BUMP-OUT (COMPLETE, IN-PLACE)	EA	0	$ 12,667.20	4	$ 50,668.80	13.0%	PER EACH	1	4	4	EA			0				0				0				0								0				0	
INTERSECTION IMPROVEMENTS	SIGNALIZATION (COMPLETE INTERSECTION)	EA	0	$ 260,000.00	1	$ 260,000.00	66.9%	PER EACH	1	1	1	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	8	$ 20,800.00	5.4%	PER EACH	2	4	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	4	$ 7,800.00	2.0%	PER EACH	1	4	4	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	192	$ 17,472.00	4.5%	LENGTH			0		24	8	192				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	32	$ 32,000.00	8.2%	PER EACH	8	4	32	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

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CHEROKEE

PEDESTRIAN IMPROVEMENTS - AREA "C", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 672,750.00	87%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 100,000.00	13%
TOTAL	$ 772,750.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

EXISTING SIDEWALK WIDTH = 5 FT

PROPOSED SIDEWALK WIDTH = 10 FT

REMOVE AND REPLACE EXISTING CURB

NO STREET LIGHT IMPROVEMENTS

NO STREETSCAPE IMPROVEMENTS

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	3000	$ 58,500.00	7.6%	AREA			0				0		5	LF	5	SF/LF	0.111111111	SY/SF	0.6	SY/LF	5000	LF	3000	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CURBS	LF	0	$ 10.40	5000	$ 52,000.00	6.7%	LENGTH			0		2500	2	5000	LF			0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	500	$ 6,500.00	0.8%	VOLUME			0				0				0				0				0		10	FT	0.5	FT	0.04	CY/CF	0.2	CY/LF	2500	LF	500	CY
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	6500	$ 42,250.00	5.5%	AREA			0				0		11.5	LF	11.5	SF/LF	0.111111111	SY/SF	1.3	SY/LF	5000	LF	6500	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, GRANITE	LF	0	$ 45.50	5000	$ 227,500.00	29.4%	LENGTH			0		2500	2	5000	LF			0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	5500	$ 286,000.00	37.0%	AREA			0				0		10	LF	10	SF/LF	0.111111111	SY/SF	1.1	SY/LF	5000	LF	5500	SY							0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	100	$ 100,000.00	12.9%	PER EACH	2	50	100	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

CHEROKEE

BIKE IMPROVEMENTS - AREA "B", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 8,320.00	23%
ROADWAY IMPROVEMENTS	$ 28,464.80	77%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 36,784.80	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
ROADWAY IMPROVEMENTS	ROTOMILL, ASPHALT SURFACE, 2-INCH DEPTH	SY	1	$ 2.60	1288	$ 3,348.80	9.1%	AREA			0				0		50	FT	50	SF/LF	0.111111111	SY/SF	5.6	SY/LF	230	LF	1288	SY							0				0	
ROADWAY IMPROVEMENTS	RESURFACE PAVEMENT, ASPHALT, 2-INCH DEPTH	SY	1	$ 19.50	1288	$ 25,116.00	68.3%	AREA			0				0		50	FT	50	SF/LF	0.111111111	SY/SF	5.6	SY/LF	230	LF	1288	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	PAVEMENT MARKINGS, BIKE BOX	EA	0	$ 1,040.00	8	$ 8,320.00	22.6%	PER EACH	1	8	8	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

CHEROKEE

VEHICULAR IMPROVEMENTS - AREA "A", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 1,456,000.00	24%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 3,714,464.00	61%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 897,060.00	15%
TOTAL	$ 6,067,524.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

CONVERSION OF ONE LANE IN EACH DIRECTION TO SIDEWALK

NO STREETSCAPE

PEDESTRIAN IMPROVEMENTS FOR AREA "C", TIER 1 ARE ASSUMED TO BE COMPLETED

WIDTH OF PAVEMENT REMOVAL = 12 FEET

WIDTH OF PROPOSED WALK = 11 FEET

STREET LIGHT SPACING = 75 FEET

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF ASPHALT PAVEMENT	SY	1	$ 14.30	17680	$ 252,824.00	4.2%	AREA			0				0		12	FT	12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	13600	LF	17680	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	5440	$ 70,720.00	1.2%	VOLUME			0				0				0				0				0		12	FT	1	FT	* 0.04	CY/CF	0.4	CY/LF	13600	LF	5440	CY
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	17680	$ 114,920.00	1.9%	AREA			0				0		12	FT	12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	13600	LF	17680	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, CONCRETE	LF	0	$ 28.60	13600	$ 388,960.00	6.4%	LENGTH			0		6800	2	13600	LOF			0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	CURB, GRANITE	LF	0	$ 45.50	13600	$ 618,800.00	10.2%	LENGTH			0		6800	2	13600	LOF			0				0				0								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	16320	$ 848,640.00	14.0%	AREA			0				0		11	FT	11	SF/LF	0.111111111	SY/SF	1.2	SY/LF	13600	LF	16320	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	182	$ 1,419,600.00	23.4%	PER EACH	1	182	182	EA			0				0				0				0								0				0	
INTERSECTION IMPROVEMENTS	SIGNALIZATION, PEDESTRIAN	EA	0	$ 3,900.00	40	$ 156,000.00	2.6%	PER EACH	8	5	40	EA			0				0				0				0								0				0	
INTERSECTION IMPROVEMENTS	SIGNALIZATION (COMPLETE INTERSECTION)	EA	0	$ 260,000.00	5	$ 1,300,000.00	21.4%	PER EACH	1	5	5	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	90	$ 234,000.00	3.9%	PER EACH	1	90	90	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	30	$ 58,500.00	1.0%	PER EACH	1	30	30	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	2160	$ 196,560.00	3.2%	LENGTH			0		40	54	2160				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	408	$ 408,000.00	6.7%	PER EACH	3	136	408	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

CHEROKEE

VEHICULAR IMPROVEMENTS - AREA "B", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 421,843.50	59%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 34,060.00	5%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 265,000.00	37%
TOTAL	$ 720,903.50	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
INTERSECTION IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	3900	$ 76,050.00	10.5%	AREA			0				0				0				0				3900	SY							0				0	
INTERSECTION IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	3900	$ 50,700.00	7.0%	VOLUME			0				0				0				0				0		1	YD	1	YD	1.00		1		3900	YD	3900	CY
INTERSECTION IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	3350	$ 21,775.00	3.0%	AREA			0				0				0				0				3350	SY							0				0	
INTERSECTION IMPROVEMENTS	PAVEMENT, CONCRETE, NON-REINFORCED, 15-FT JOINTS, 9-INCHES THICK	SY	1	$ 71.50	1600	$ 114,400.00	15.9%	AREA			0				0				0				0				1600	SY							0				0	
INTERSECTION IMPROVEMENTS	CURB, CONCRETE	LF	0	$ 28.60	660	$ 18,876.00	2.6%	LENGTH			0		660	1	660				0				0				0								0				0	
INTERSECTION IMPROVEMENTS	MEDIAN, CONCRETE, 6-INCHES HIGH	SY	1	$ 71.50	1025	$ 73,287.50	10.2%	AREA			0				0				0				0				1025								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	655	$ 34,060.00	4.7%	AREA			0				0				0				0				655								0				0	
INTERSECTION IMPROVEMENTS	SOD	SY	1	$ 6.50	670	$ 4,355.00	0.6%	AREA			0				0				0				0				670								0				0	
INTERSECTION IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	8	$ 62,400.00	8.7%	PER EACH	1	8	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	8	$ 20,800.00	2.9%	PER EACH	1	8	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	4	$ 7,800.00	1.1%	PER EACH	1	4	4	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	400	$ 36,400.00	5.0%	LENGTH			0				400				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	200	$ 200,000.00	27.7%	PER EACH	1	200	200	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

CHEROKEE

VEHICULAR IMPROVEMENTS - AREA "C", TIER 1

ASSUMPTIONS:

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ 665,353.00	62%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 55,900.00	5%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 351,050.00	33%
TOTAL	$ 1,072,303.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
INTERSECTION IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	6450	$ 125,775.00	11.7%	AREA			0				0				0				0				6450	SY							0				0	
INTERSECTION IMPROVEMENTS	EARTHWORK	CY	1	$ 13.00	6450	$ 83,850.00	7.8%	VOLUME			0				0				0				0				0		1	YD	1	YD	1.00		1		6450	YD	6450	CY
INTERSECTION IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	5600	$ 36,400.00	3.4%	AREA			0				0				0				0				5600	SY							0				0	
INTERSECTION IMPROVEMENTS	PAVEMENT, CONCRETE, NON-REINFORCED, 15-FT JOINTS, 9-INCHES THICK	SY	1	$ 71.50	3350	$ 239,525.00	22.3%	AREA			0				0				0				0				3350	SY							0				0	
INTERSECTION IMPROVEMENTS	CURB, CONCRETE	LF	0	$ 28.60	1030	$ 29,458.00	2.7%	LENGTH			0		1030	1	1030				0				0				0								0				0	
INTERSECTION IMPROVEMENTS	MEDIAN, CONCRETE, 6-INCHES HIGH	SY	1	$ 71.50	1150	$ 82,225.00	7.7%	AREA			0				0				0				0				1150								0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	1075	$ 55,900.00	5.2%	AREA			0				0				0				0				1075								0				0	
INTERSECTION IMPROVEMENTS	SOD	SY	1	$ 6.50	880	$ 5,720.00	0.5%	AREA			0				0				0				0				880								0				0	
INTERSECTION IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	8	$ 62,400.00	5.8%	PER EACH	1	8	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	8	$ 20,800.00	1.9%	PER EACH	1	8	8	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	5	$ 9,750.00	0.9%	PER EACH	1	5	5	EA			0				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	500	$ 45,500.00	4.2%	LENGTH			0				500				0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	275	$ 275,000.00	25.6%	PER EACH	1	275	275	EA			0				0				0				0								0				0	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

m3 ENGINEERING GROUP P.C.

REV. 0 - 6/26/2013 MSM

CHEROKEE

VEHICULAR IMPROVEMENTS - AREA "D", TIER 1

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ 243,360.00	15%
ROADWAY IMPROVEMENTS	$ 1,081,392.00	66%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ 308,544.00	19%
TOTAL	$ 1,633,296.00	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

STREET LIGHT SPACING =	75 FT
SIDEWALK WIDTH =	6 FT
LANE WIDTH =	12 FT
NO. OF LANES =	2

NO SIGNALIZATION

NO STREETSCAPE

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS												VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT		AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
ROADWAY IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	6720	$ 131,040.00	8.0%	AREA			0				0		25	LF		25	SF/LF	0.111111111	SY/SF	2.8	SY/LF	2400	LF	6720	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	3120	$ 60,840.00	3.7%	AREA			0				0		12	LF		12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	2400	LF	3120	SY							0				0	
ROADWAY IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	7200	$ 46,800.00	2.9%	AREA			0				0		27	LF		27	SF/LF	0.111111111	SY/SF	3	SY/LF	2400	LF	7200	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	3120	$ 20,280.00	1.2%	AREA			0				0		12	LF		12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	2400	LF	3120	SY							0				0	
ROADWAY IMPROVEMENTS	PAVEMENT, ASPHALT ROADWAY, 10-INCHES THICK	SY	1	$ 62.40	6480	$ 404,352.00	24.8%	AREA			0				0		24	LF		24	SF/LF	0.111111111	SY/SF	2.7	SY/LF	2400	LF	6480	SY							0				0	
PEDESTRIAN/BIKE IMPROVEMENTS	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	3120	$ 162,240.00	9.9%	AREA			0				0		12	LF	0	12	SF/LF	0.111111111	SY/SF	1.3	SY/LF	2400	LF	3120	SY							0				0	
ROADWAY IMPROVEMENTS	STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	64	$ 499,200.00	30.6%	PER EACH	2	32	64	EA			0					0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	INLET, STORM	EA	0	$ 2,600.00	32	$ 83,200.00	5.1%	PER EACH	2	16	32	EA			0					0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	MANHOLE, STORM	EA	0	$ 1,950.00	16	$ 31,200.00	1.9%	PER EACH	1	16	16	EA			0					0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	1584	$ 144,144.00	8.8%	LENGTH			0		1	1584	1584					0				0				0								0				0	
UTILITIES (INCLUDES SEWERS)	UTILITY ADJUSTMENTS	EA	0	$ 1,000.00	50	$ 50,000.00	3.1%	PER EACH	1	50	50	EA			0					0				0				0								0				0	

MASTER PAY ITEM LIST

ITEM	UNITS	ACCURACY	UNIT COST	RAW COST (2013)	MOBILIZATION	CONTINGENCY	DESCRIPTION/NOTES
AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	$ 5.00	$ 0.25	$ 1.25	
BENCHES	EA	0	$ 1,300.00	$ 1,000.00	$ 50.00	$ 250.00	
CURB, CONCRETE	LF	0	$ 28.60	$ 22.00	$ 1.10	$ 5.50	
CURB, GRANITE	LF	0	$ 45.50	$ 35.00	$ 1.75	$ 8.75	
EARTHWORK	CY	1	$ 13.00	$ 10.00	$ 0.50	$ 2.50	
INLET, STORM	EA	0	$ 2,600.00	$ 2,000.00	$ 100.00	$ 500.00	
INTERSECTION BUMP-OUT (COMPLETE, IN-PLACE)	EA	0	$ 12,667.20		$ -	$ -	
MANHOLE, STORM	EA	0	$ 1,950.00	$ 1,500.00	$ 75.00	$ 375.00	
MEDIAN, CONCRETE, 6-INCHES HIGH	SY	1	$ 71.50	$ 55.00	$ 2.75	$ 13.75	
MODIFY EXISTING SIGNAL	EA		$ 32,500.00	$ 25,000.00	$ 1,250.00	$ 6,250.00	
PAVEMENT MARKING REMOVAL, 4-INCH WIDE	LF	0	$ 5.20	$ 4.00	$ 0.20	$ 1.00	
PAVEMENT MARKINGS, "BUS LANE ONLY" WORDS	EA		$ 325.00	$ 250.00	$ 12.50	$ 62.50	
PAVEMENT MARKINGS, 4" WIDE STRIPE	LF	0	$ 0.26	$ 0.20	$ 0.01	$ 0.05	
PAVEMENT MARKINGS, BIKE BOX	EA	0	$ 1,040.00	$ 800.00	$ 40.00	$ 200.00	
PAVEMENT MARKINGS, SHARE THE ROAD "SHARROW" ARROW SYMBOL	EA	0	$ 260.00	$ 200.00	$ 10.00	$ 50.00	
PAVEMENT, ASPHALT MULTI-USE TRAIL, 6-INCHES THICK	SY	1	$ 45.50	$ 35.00	$ 1.75	$ 8.75	
PAVEMENT, ASPHALT ROADWAY, 10-INCHES THICK	SY	1	$ 62.40	$ 48.00	$ 2.40	$ 12.00	
PAVEMENT, ASPHALT, COLORED W/ STAMPED PATTERN, 2-INCHES THICK	SY	1	$ 65.00	$ 50.00	$ 2.50	$ 12.50	
PAVEMENT, CONCRETE, NON-REINFORCED, 15-FT JOINTS, 9-INCHES THICK	SY	1	$ 71.50	$ 55.00	$ 2.75	$ 13.75	
PIPE, RCP (ASSUME 24-INCH)	LF	0	$ 91.00	$ 70.00	$ 3.50	$ 17.50	
REMOVAL OF ASPHALT PAVEMENT	SY	1	$ 14.30	$ 11.00	$ 0.55	$ 2.75	
REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	$ 15.00	$ 0.75	$ 3.75	
REMOVAL OF CURBS	LF	0	$ 10.40	$ 8.00	$ 0.40	$ 2.00	
RESURFACE PAVEMENT, ASPHALT, 2-INCH DEPTH	SY	1	$ 19.50	$ 15.00	$ 0.75	$ 3.75	
ROTOMILL, ASPHALT SURFACE, 2-INCH DEPTH	SY	1	$ 2.60	$ 2.00	$ 0.10	$ 0.50	
SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	$ 40.00	$ 2.00	$ 10.00	
SIGN (INCLUDES MOUNTING)	EA	0	$ 260.00	$ 200.00	$ 10.00	$ 50.00	
SIGNALIZATION (COMPLETE INTERSECTION)	EA	0	$ 260,000.00	$ 200,000.00	$ 10,000.00	$ 50,000.00	
SIGNALIZATION, PEDESTRIAN	EA	0	$ 3,900.00	$ 3,000.00	$ 150.00	$ 750.00	
SOD	SY	1	$ 6.50	$ 5.00	$ 0.25	$ 1.25	
STREET LIGHTING, DECORATIVE (INCLUDES ALL INCIDENTALS)	EA	0	$ 7,800.00	$ 6,000.00	$ 300.00	$ 1,500.00	
TRASH RECIPTICALS	EA	0	$ 390.00	$ 300.00	$ 15.00	$ 75.00	

PLANNING LEVEL ESTIMATE OF CONSTRUCTION COSTS

FOR TOD STUDY AREA PLANS

INTERSECTION BUMP-OUT ESTIMATED COST

COST SUMMARY		
INTERSECTION IMPROVEMENTS	$ -	0%
PEDESTRIAN/BIKE IMPROVEMENTS	$ -	0%
ROADWAY IMPROVEMENTS	$ -	0%
STREETSCAPE IMPROVEMENTS	$ -	0%
UTILITIES (INCLUDES SEWERS)	$ -	0%
TOTAL	$ 12,667.20	

ALL COSTS ARE IN 2013 DOLLARS

ALL COSTS INCLUDE MOBILIZATION (5%) AND CONTINGENCY (25%)

ASSUMPTIONS:

COST INCLUDES REMOVALS.

COST INCLUDES ROADWAY, SIDEWALK AND CURB.

COST DOES NOT INCLUDE LIGHTING, SIGNALS OR UTILITIES.

NOTE:

* ASSUMED

									PER EACH CALCULATIONS				LENGTH CALCULATIONS				AREA CALCULATIONS										VOLUME CALCULATIONS											
CLASS	ITEM	UNIT	ACCURACY	UNIT COST	QTY	ITEM COST		CALC. TYPE	NUMBER PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	LENGTH PER OCCURANCE	NUMBER OF OCCURANCES	TOTAL	UNITS	WIDTH	UNIT	AREA	UNIT	CONV. FACTOR	UNIT	AREA	UNIT	LENGTH	UNIT	TOTAL AREA	UNIT	WIDTH	UNIT	DEPTH	UNIT	CONV. FACTOR	UNIT	VOL	UNITS	LENGTH	UNIT	TOTAL VOL	UNIT
	REMOVAL OF CURBS	LF	0	$ 10.40	56	$ 582.40	4.6%	LENGTH			0				56	FT			0				0				0								0				0	
	REMOVAL OF CONCRETE PAVEMENT (24 INCHES OR LESS THICKNESS)	SY	1	$ 19.50	54	$ 1,053.00	8.3%	AREA			0				0				0				0				54	SY							0				0	
	REMOVAL OF ASPHALT PAVEMENT	SY	1	$ 14.30	61	$ 872.30	6.9%	AREA			0				0				0				0				61	SY							0				0	
	CURB, GRANITE	LF	0	$ 45.50	80	$ 3,640.00	28.7%	LENGTH			0				80	FT			0				0				0								0				0	
	SIDEWALK, CONCRETE, 5-INCH THICK (INCLUDES CURB RAMPS)	SY	1	$ 52.00	111	$ 5,772.00	45.6%	AREA			0				0				0				0				111	SY							0				0	
	AGGREGATE BASE, 4-INCH DEPTH	SY	1	$ 6.50	115	$ 747.50	5.9%	AREA			0				0				0				0				115	SY							0				0	