



Ford Site | St. Paul, MN

# Multimodal Modeling and Design

November 2016



**N** NELSON  
NYGAARD

**SRF**


















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# Agenda

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- 6:30 p.m. Welcome
- 6:35 p.m. Councilmember Tolbert
- 6:40 p.m. Status of Ford Site Planning
- 6:50 p.m. Study Overview and Results
- 7:30 p.m. Questions and Answers
- 7:45 p.m. Topic Boards - comments and questions

# Project Timeline – Public Process

	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST
<b>CONCEPT PLAN</b>										
Public Review	  	 								
Staff Revisions										
<b>REVISED CONCEPT PLAN</b>										
Public Review			 	 						
Staff Revisions										
<b>PROPOSED PLAN</b>										
Planning Commission					 					
City Council								 		



Large Public Meeting



Ford Task Force meeting



Public Hearing



Staff Revisions



Planning Commission



City Council



# Councilmember Chris Tolbert



“Any business only exists to make peoples’ lives better. At a certain point, shoving more vehicles into urban environments doesn’t do that.”  
- Bill Ford, September 2014

# A 21<sup>st</sup> Century Community for Transportation

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- Connect the neighborhood to the Mississippi River
- Expand live, work, and play opportunities for onsite, neighborhood, and regional users
- Provide multiple connections to the surrounding transportation network
- Ensure access for all people using all modes of transportation



# Traffic Impact Study

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- Future master developer will be required (under State law) to do a full traffic impact study on the final proposed development plan

<i>What</i>	Traffic Modeling Study	Traffic Impact Study
<i>When</i>	2015/2016	2018/2019
<i>Why</i>	To inform Ford site zoning and public realm plan	To examine viability of proposed development
<i>How</i>	High level analysis - based on POTENTIAL transportation network and connections	Detailed Analysis - based on PROPOSED transportation network and connections
<i>Where</i>	Examines on-site, adjacent, and more distant impacts	Examines on-site, adjacent, and more distant impacts
<i>Who</i>	City pays for study	Developer pays for study



# Existing Street Network

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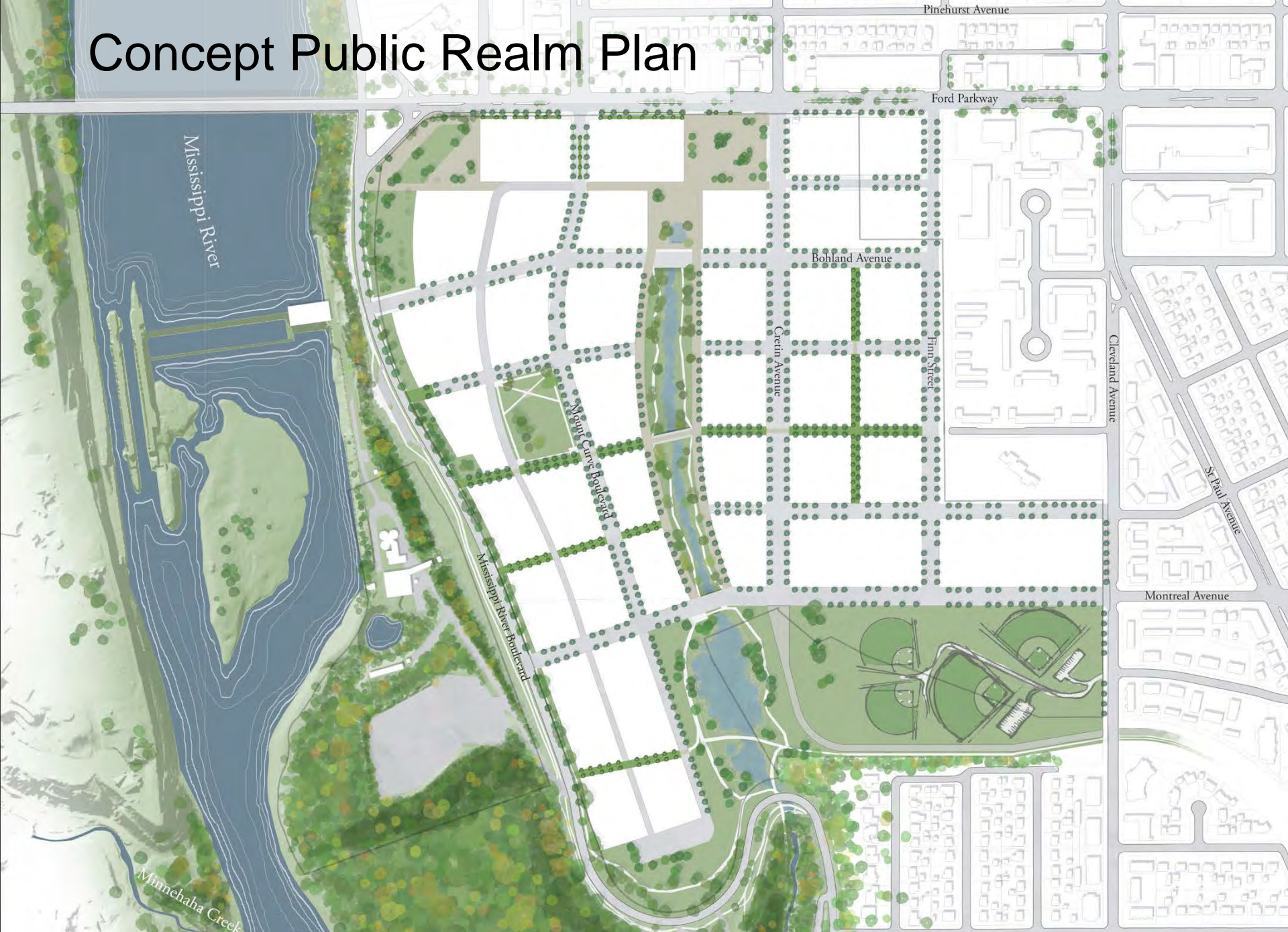
# Ford Site as Barrier

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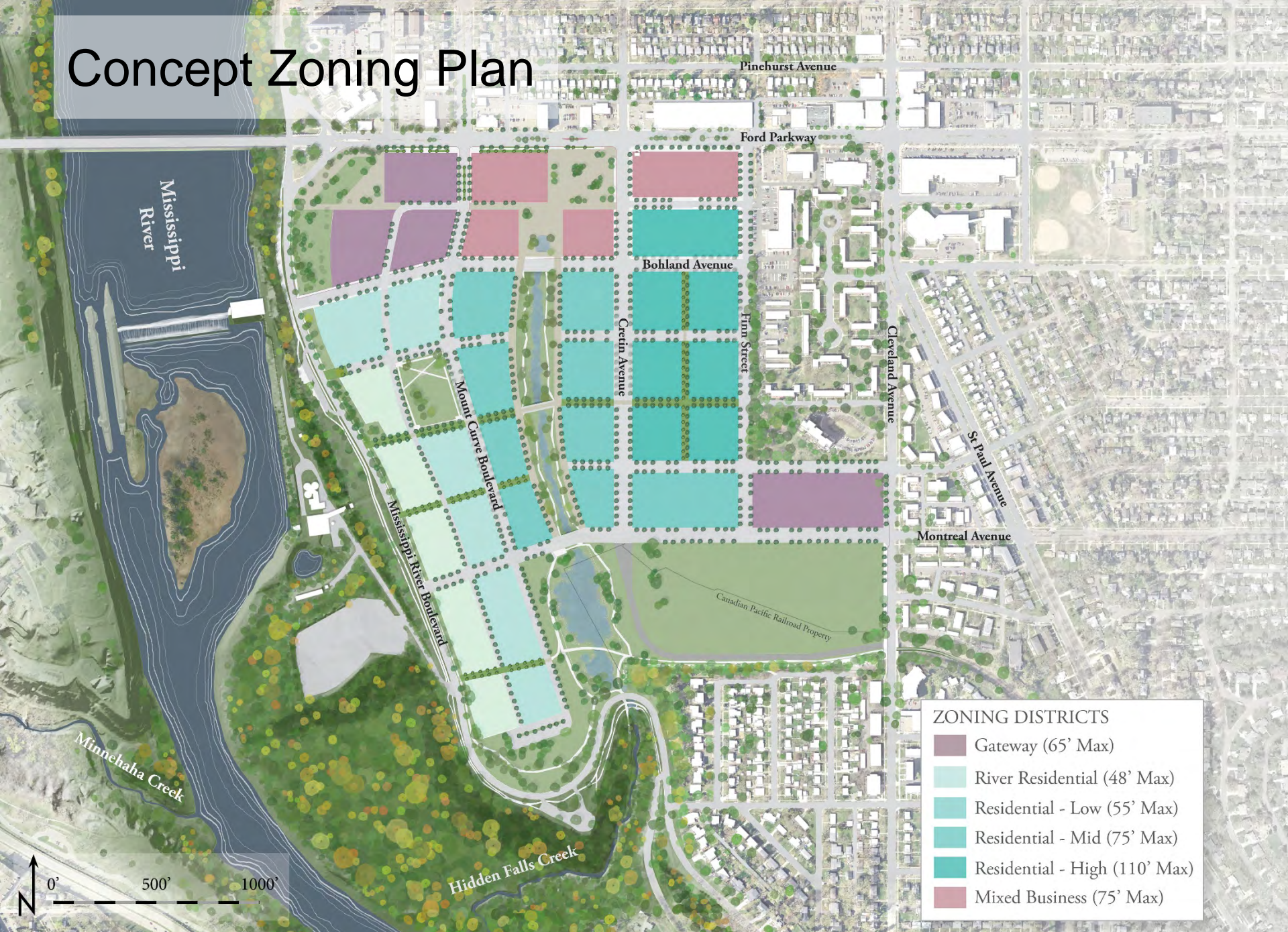


# Concept Public Realm Plan





# Concept Zoning Plan



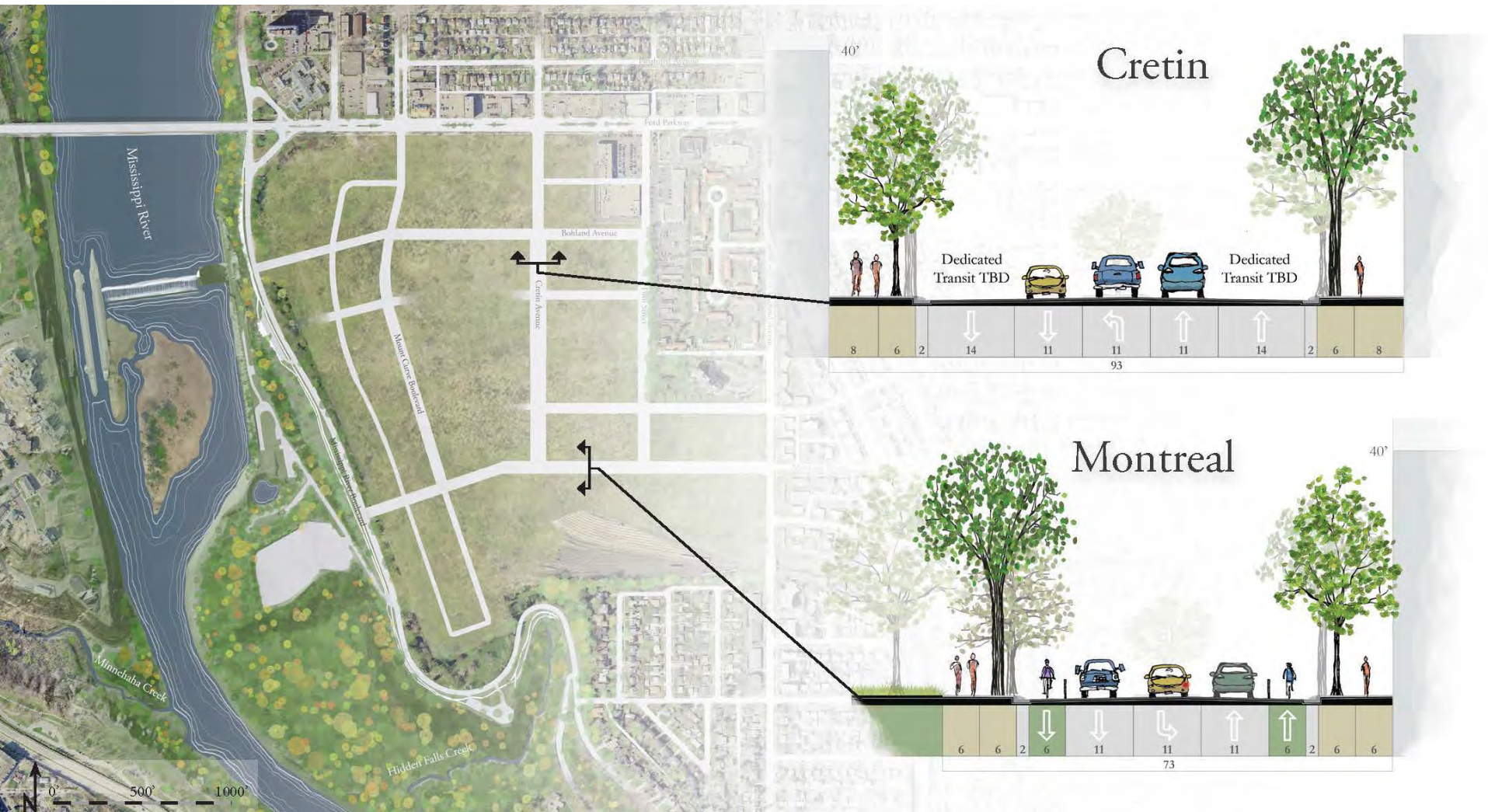


# Ford Site Transportation Network



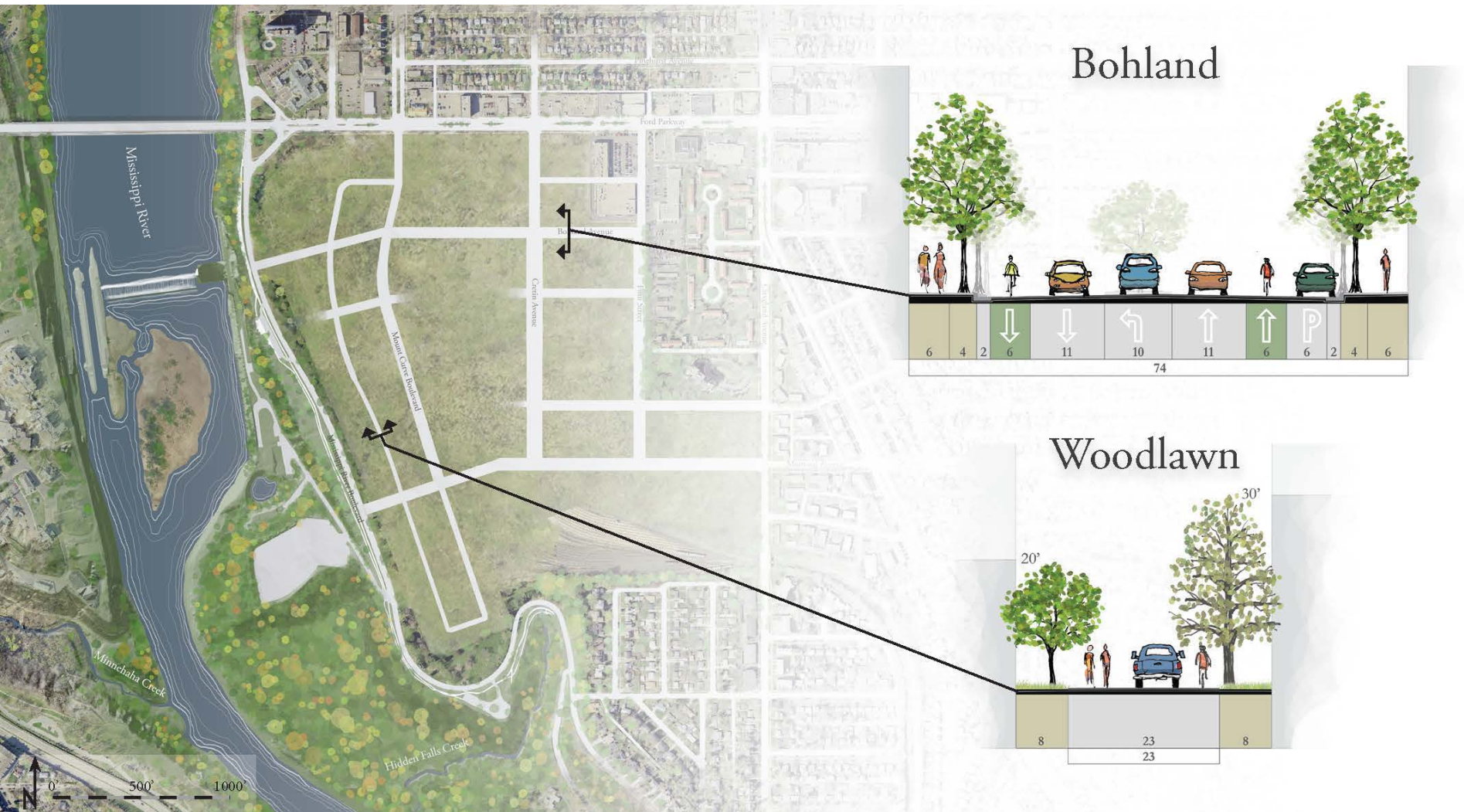


# Primary Streets



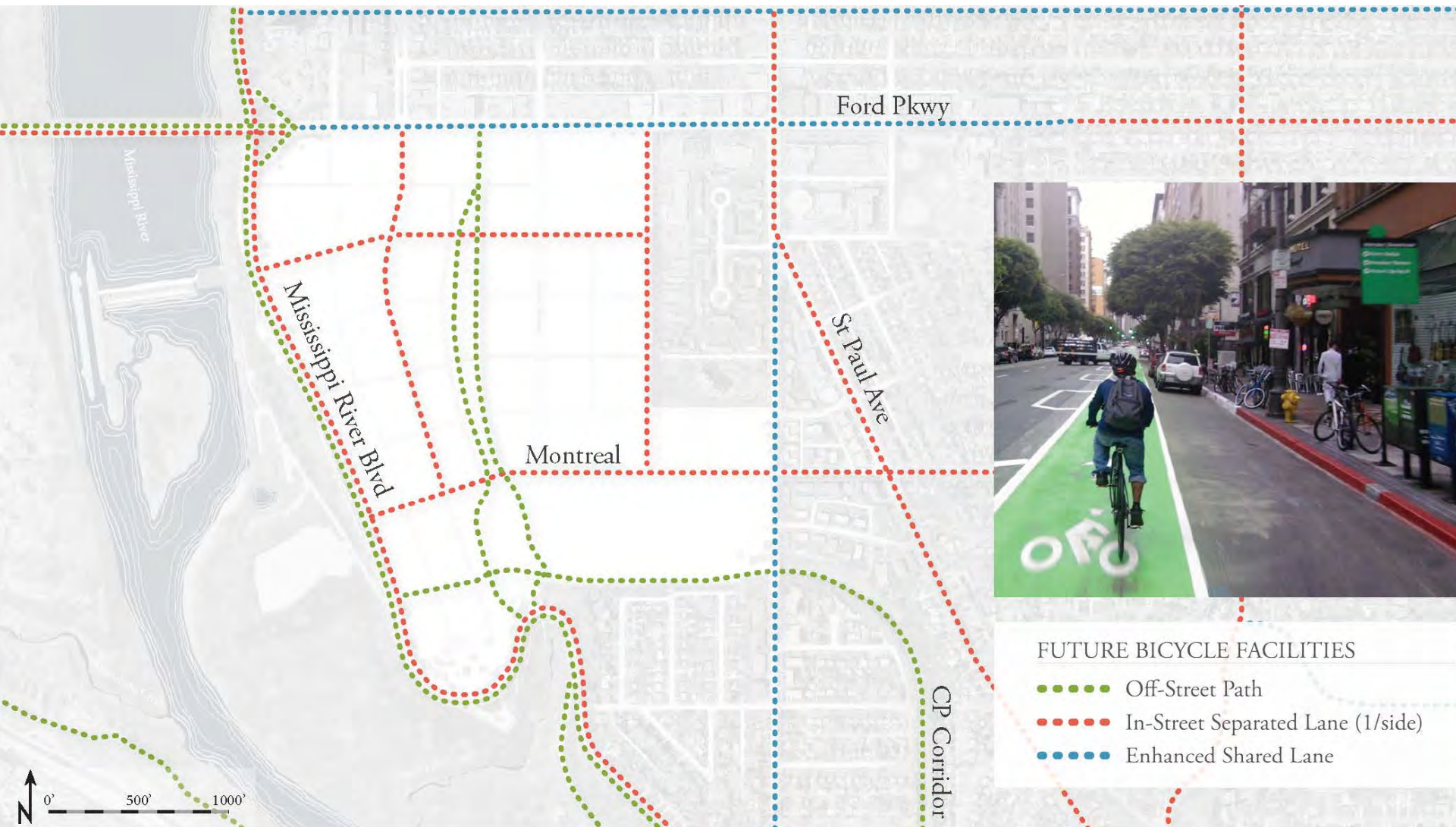


# Secondary Streets





# Walking and Biking Network





# Multimodal Modeling and Design

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The purpose of this effort is to:

- Develop an understanding of how travel will work to, from, and within the Ford Site.
- Review land use and transportation network designs that maximize the value of, and minimize the negative impacts of, Ford site development.

# Transportation Trends and Principles

## 70% of drivers would rather not drive

if other options effectively met their needs

"I don't live close to transit"

"I need to drop my kids off at school"

"I'll drive to work, no matter what"



"I can't afford to live close to work"

"Using transit would take longer"



# Transportation Trends and Principles

## People will walk

when destinations are close by



% of trips within 1 mile  
made by walking

**60%** **for fun**



**46%** **to school or church**



**40%** **to the store**



**35%** **to work**

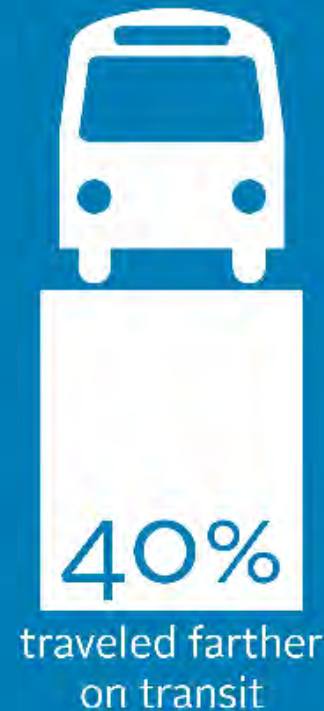


Federal Highway Administration, 2009 National Household Travel Survey

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# Transportation Trends and Principles

Young adults are finding **new ways to get around.**  
From 2001 to 2009, 16 to 34-year-olds:



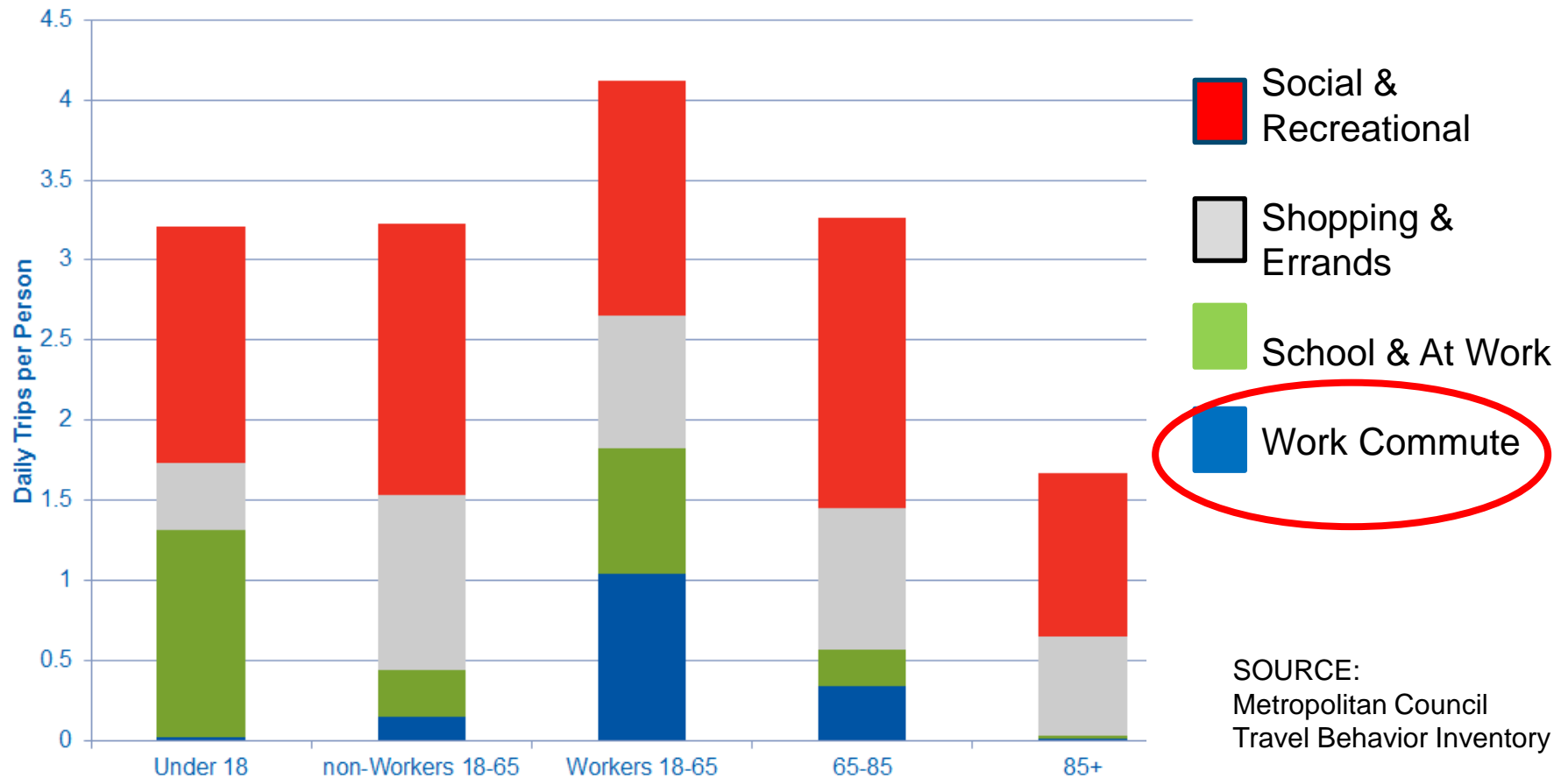
Federal Highway Administration, "National Household Driving Trends," 2001-2009

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# Transportation Trends and Principles

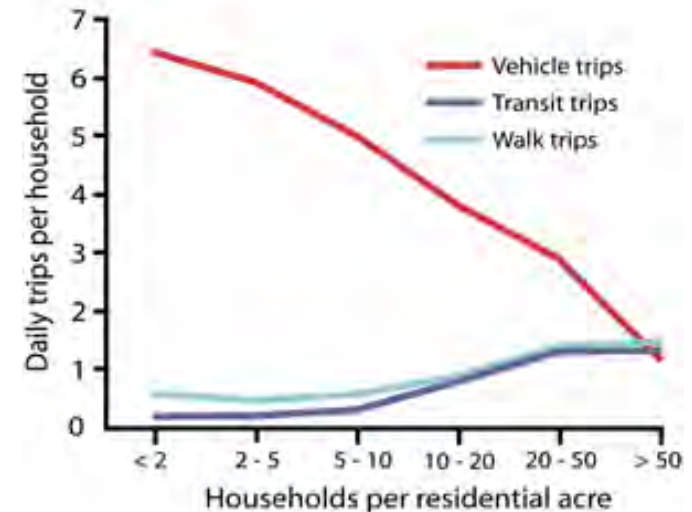
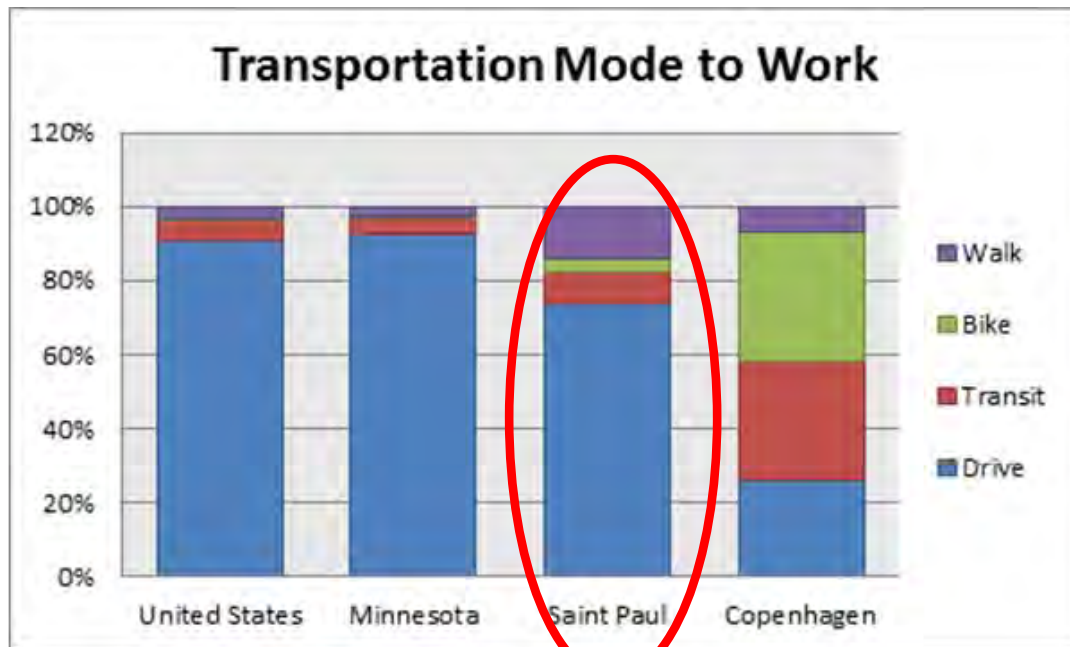
## Travel by Age Group (Regional)



# Transportation Trends and Principles

In the United States\*:

- Public transportation use increased 37% since 1995 and is at the highest rate since 1956
- Bike commuting increased 60% since 2005
- Walking increased 6% since 2005

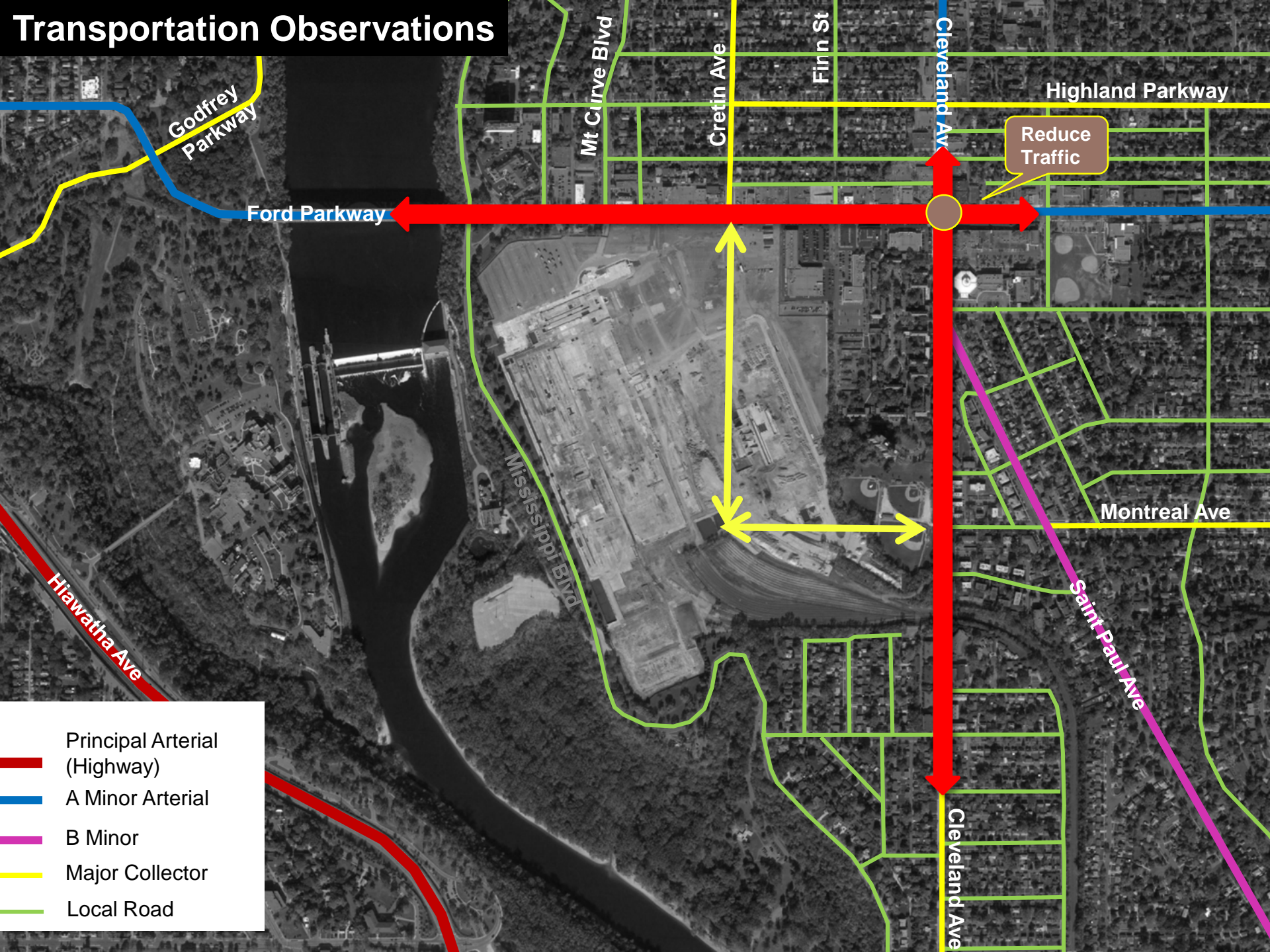


- Miles driven per person in United States decreased 9% since 2005
- Increased density reduces car trips

\* Source: 11 Reasons Why Trains, Buses, Bikes and Walking Move Us Toward a Brighter Future, by Jay Walljasper



# Transportation Observations



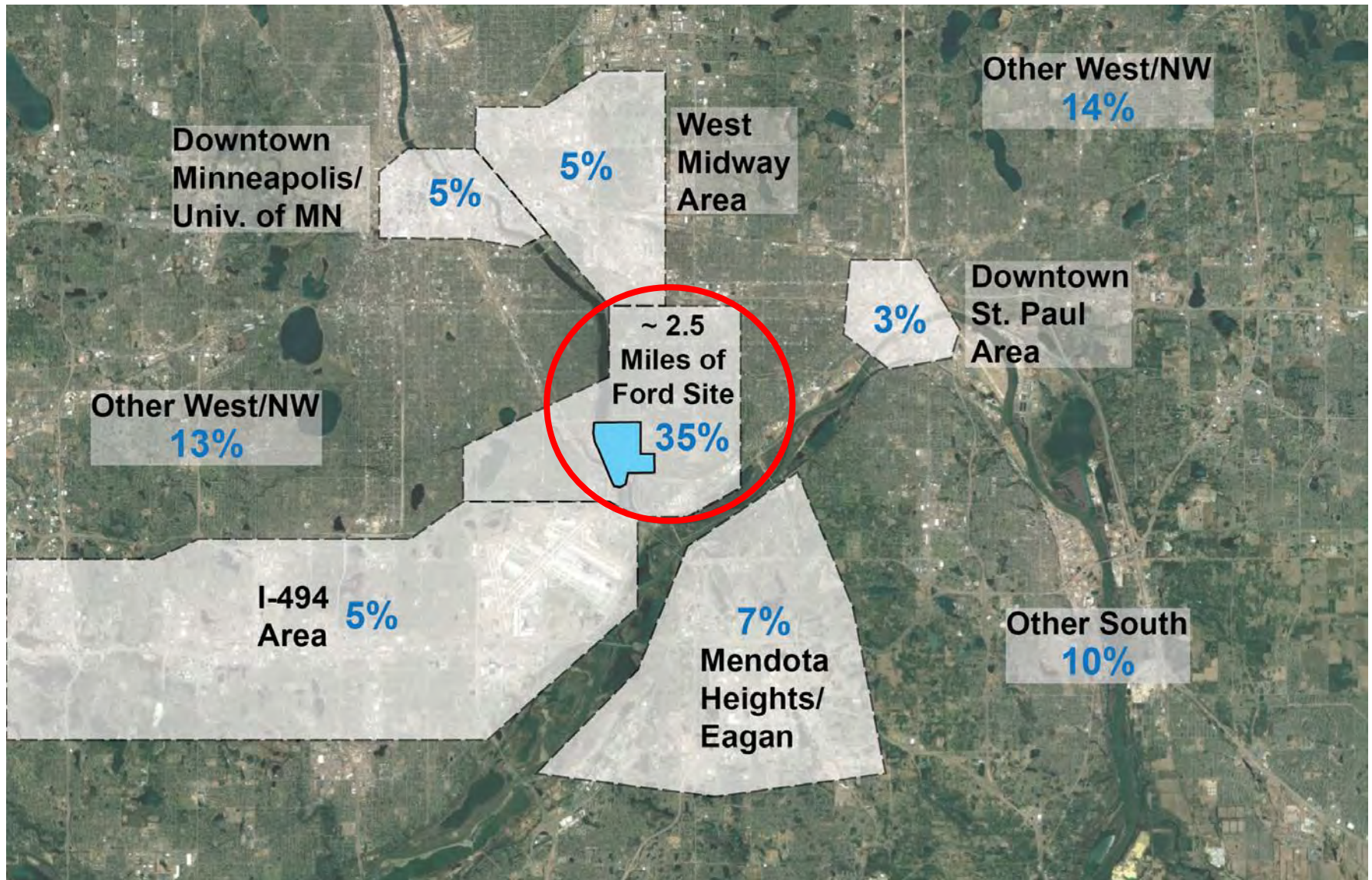


# Transportation Observations



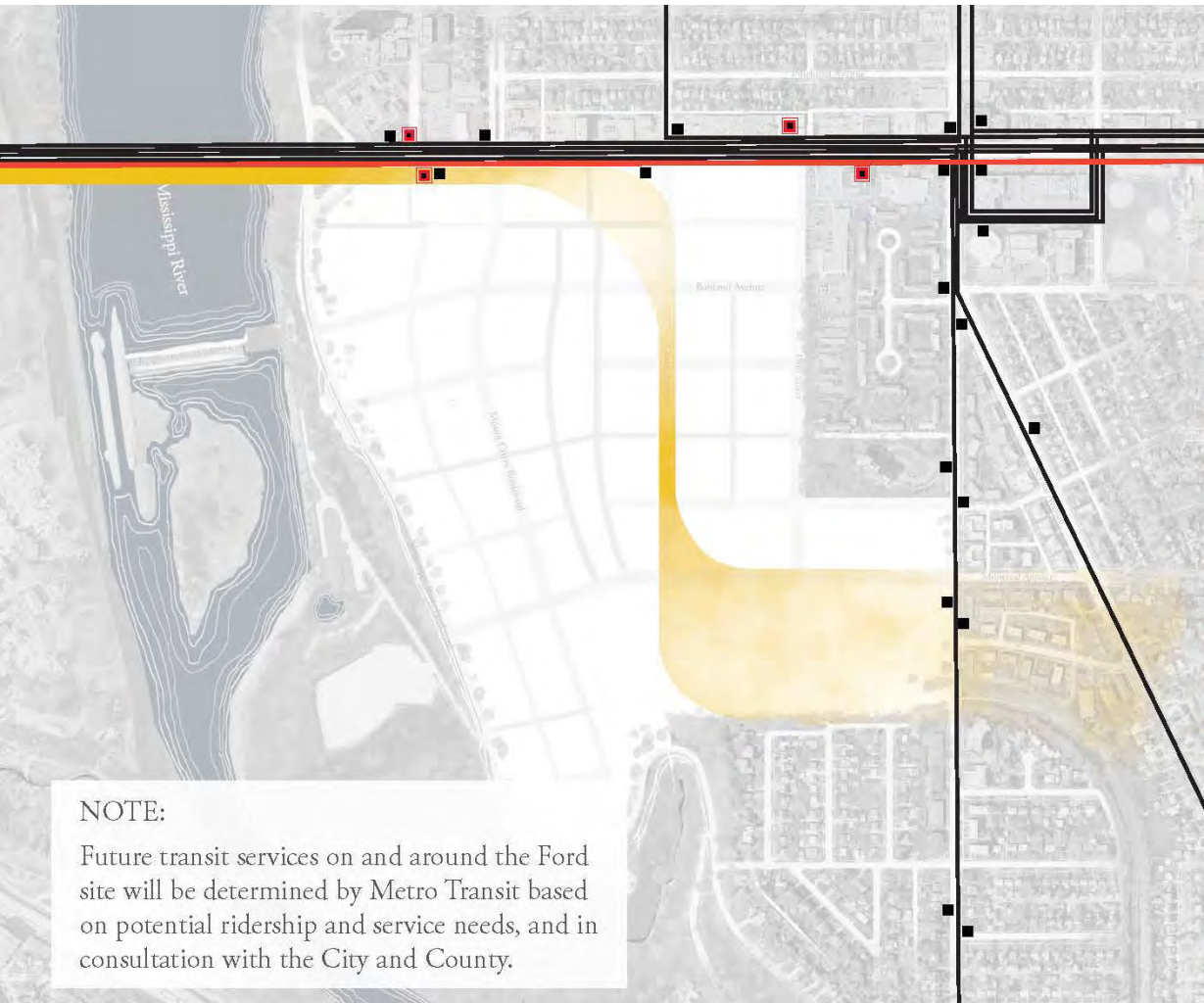


# Transportation Observations - Origins



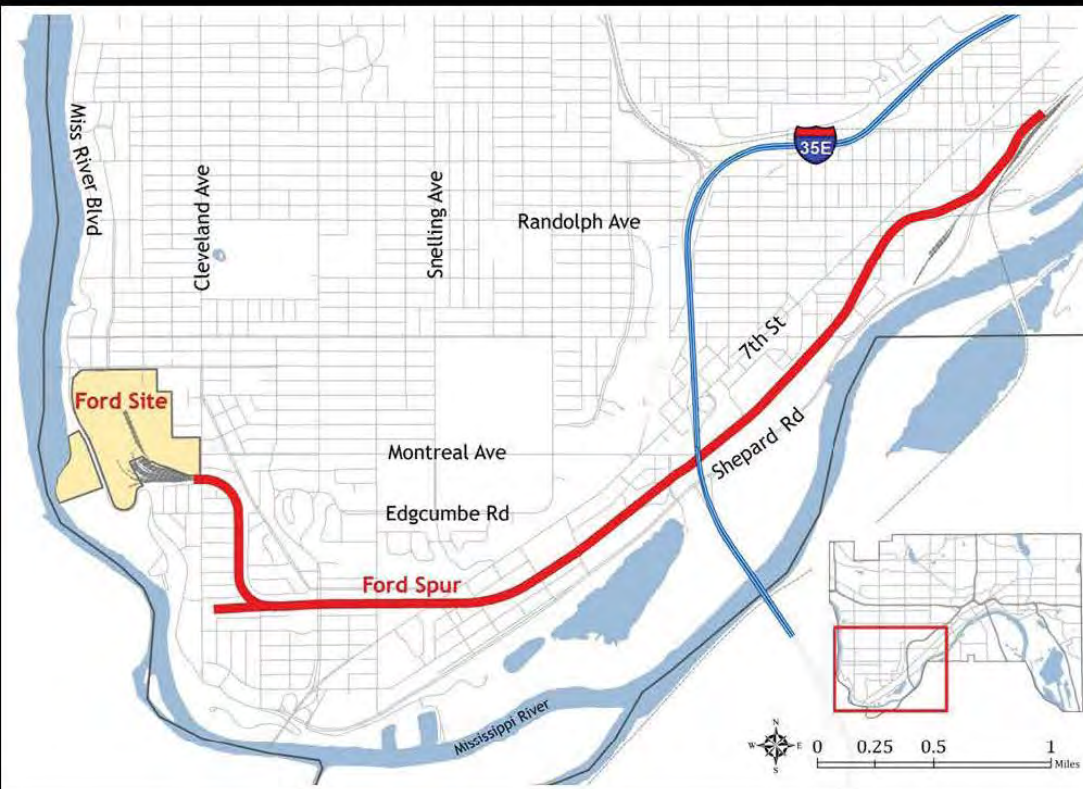


# Transit Network





# Canadian Pacific Rail Spur



# Public Input – Streets, Parking, Traffic

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## Public Priorities:

- Accommodate cars, but don't encourage them
- Design streets to calm traffic and prevent speeding
- Direct traffic to larger through streets in area
- Provide most parking in structured ramps, with some on-street and in alleys





# Public Input – Bikes, Pedestrians & Transit

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## Public Priorities:

- Design safe, designated space for bicycles and pedestrians
- Provide well-connected, frequent transit and good shelters
- Balance needs of cars, bikes, pedestrians, and transit in public right-of-way



# Performance Evaluation

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## Goals

- Pedestrian Access
- Minimized Vehicle Travel
- Parking Management

## Targets

- Desired
- Acceptable
- Unacceptable

## Measures

- Physical
- Operational
- Policy-oriented
- Use-based





# Development Goals - Samples

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1. The Ford site should provide **multimodal access** with an express goal of **minimizing vehicular impacts**. People traveling to/from the Ford site should have choices of walking, biking, and taking transit.



2. Vehicular level of service on neighborhood streets should continue to function within **acceptable levels**.



3. Parking should be **shared and minimized** as part of overall site plan. The Site should accommodate cars, but not encourage them.

# Performance Targets

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## ■ Desired



## ■ Acceptable



## ■ Unacceptable





# Performance Measures

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## Physical

- Street Design Elements
- Spatial Measurement
- Parking Spaces per 1,000 SQFT
- Transit Stop Accessibility
- Roadways with Sidewalks
- Sidewalk Width
- Bicycle Parking Distance
- Pedestrian Crossing Distance

## Policy-Oriented

- Transit Stop Amenities
- Internal Street Speeds
- Shared Parking Percentage
- EV Ownership
- Parking Price
- Bicycle Lockers
- Bicycle Showers

## Use-Based

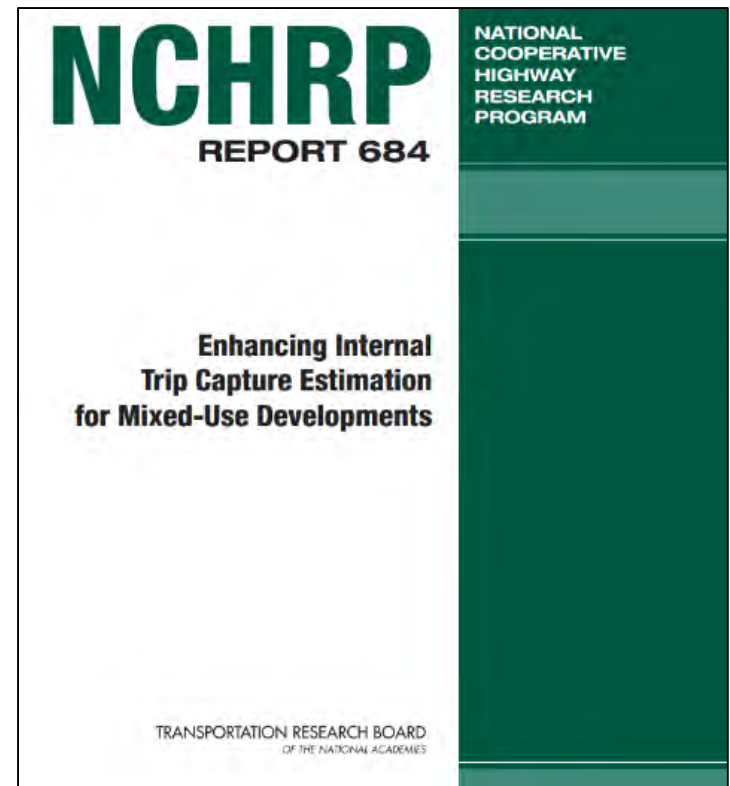
- Surveys
- Peak Hour Multimodal Traffic
- Mode Share
- Peak Hour Vehicular Traffic
- Trip Lengths

## Operational

- Bus Frequency

# Other Trip Generation Models

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## TRIP GENERATION



Buildings/ places  
attract activity  
and “person trips”

## TRADITIONAL MODE CHOICE DECISION

TRADITIONAL



PEOPLE DRIVE EVERYWHERE

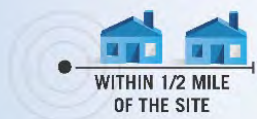
REALITY



Mix of uses  
generates  
internal trips

## REDUCTION FACTORS FOR OTHER TRIPS

**JOBS + HOUSING**



WITHIN 1/2 MILE  
OF THE SITE

**WALKING**



% OF SIDEWALK

**BICYCLE**



SEPARATED BIKE LANE

**OTHER EXAMPLES**

TRANSIT PROGRAM  
LOCAL RETAIL PRESENCE  
GUARANTEED RIDE HOME  
ETC...

## RESULTING TRIPS OUTSIDE FORD SITE



**Multimodal thinking captures the totality of how individuals make transportation choices.**

- A complementary mix of uses produces shorter, more efficient trips.
- People, especially young people, are driving less than ever.
- Connected street networks distribute vehicular trips.
- Shared parking facilities minimize overall parking need.
- A diversity of transportation options minimizes car ownership.
- People are more willing to walk and walk farther in safe, interesting environments.
- Public transportation should be frequent, reliable and, convenient.
- Bicycle facilities designed for casual users attract greater use.

## TRIP GENERATION



Buildings/ places  
attract activity  
and “person trips”

Land Use	Quantity
Civic	150,000 GFA
Employment (Office, etc.)	450,000 GFA
Retail	300,000 GFA
Residential	4,000 Units
Model Steps	Trips Generated*
ITE vehicle trips	38,600
Person trips (1.08 AVO applied)	41,700

*\*Trips Generated figures are rounded to the nearest 100 trips*





## TRIP GENERATION



Buildings/ places  
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## TRADITIONAL MODE CHOICE DECISION

TRADITIONAL



PEOPLE DRIVE EVERYWHERE

REALITY



Mix of uses  
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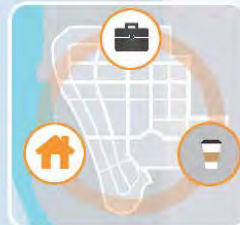
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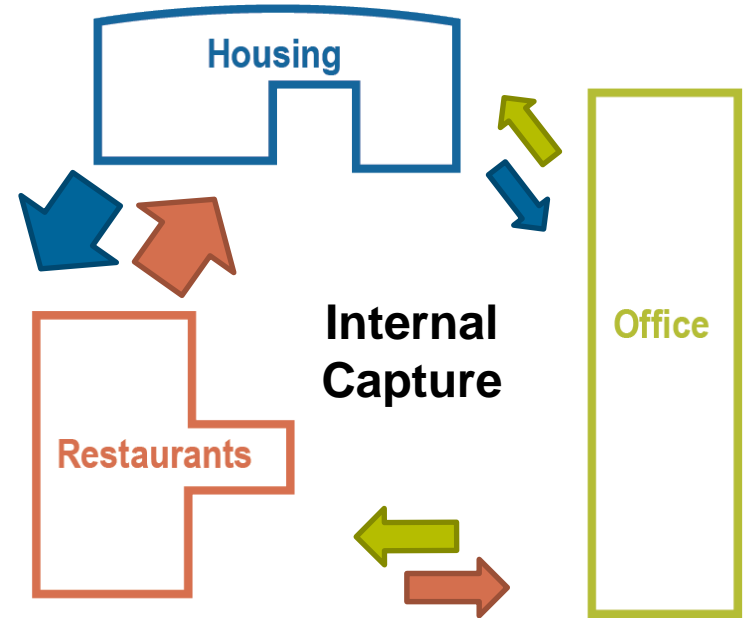


PEOPLE DRIVE EVERYWHERE

REALITY



Mix of uses  
generates  
internal trips



Source: PM Peak Unconstrained Trip Capture Rates, NCHRP Report 684

## Complementary uses:

- Have demand at different times of day to allow for shared parking
- Support quality of life, such as food outlets near offices or grocery stores near housing
- Can absorb trips otherwise made on the external network

# Vehicle Trip Reduction Factors



### Mix of Use Factors

- Jobs & Housing Balance
- Local Serving Retail
- Below Market Rate Housing

### Walking Environment Factors

- Intersection Density
- Sidewalk Completeness
- Block Size

### Bicycle Environment Factors

- Separated Bike Lanes
- Bicycle Parking
- Winter Bike Path Maintenance

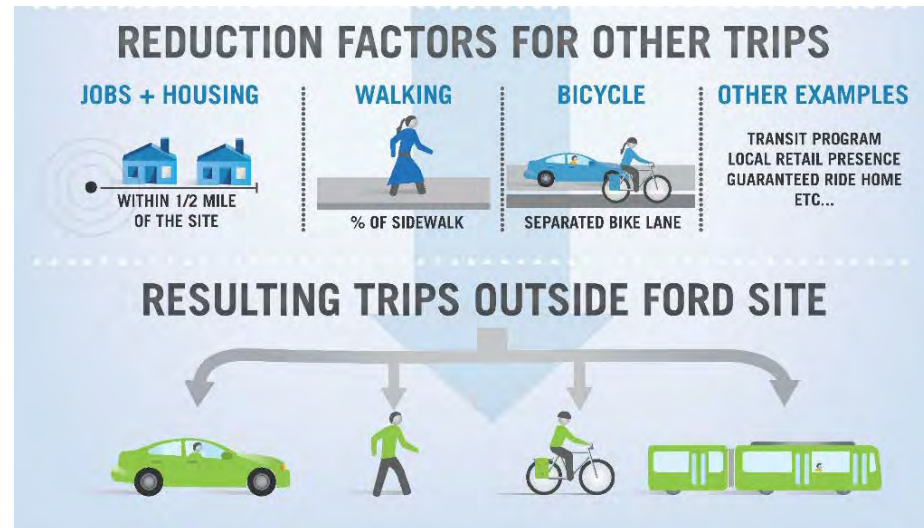
### Other Factors

- Transit Service and Proximity
- Parking Policy
- Transportation Demand Management Programs





# Vehicle Trip Reduction Factors



Vehicle Trip Reduction Factor Group	Basic Scenario	Advanced Scenario
Mix of Uses	5.2%	5.2%
TOD & Transit Services	7.5%	7.5%
Walking Environment	6.6%	7.5%
Bicycle Infrastructure	2.9%	7.4%
Parking Management & TDM	0.0%	22.2%
<b>Total</b>	<b>22.1%</b>	<b>49.8%</b>



# External Trip Generation

## External Vehicular Trips



Model	Daily*	AM Peak*	PM Peak*
Ford Model (Basic)	24,300	2,500	2,500
Ford Model (Advanced)	17,500	1,800	1,800

*\* Numbers are rounded to the nearest 10 trips*

## External Transit Trips



Model	Daily*	AM Peak*	PM Peak*
Ford Model (Basic)	6,200	640	630
Ford Model (Advanced)	10,700	1,120	1,080

*\* Numbers are rounded to the nearest 10 trips*

## External Walk+Bike Trips

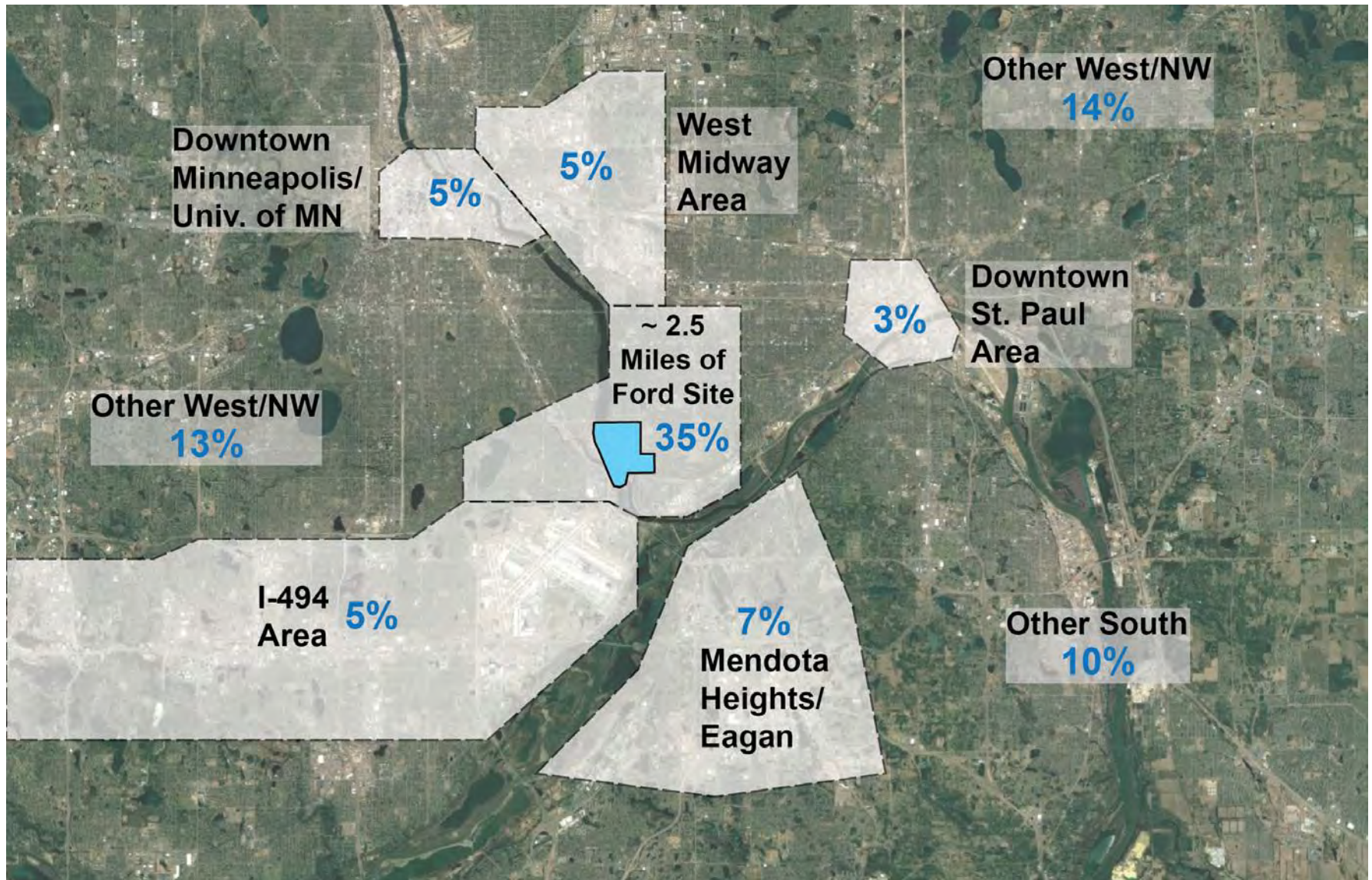


Model	Daily*	AM Peak*	PM Peak*
Ford Model (Basic)	4,060	420	410
Ford Model (Advanced)	7,030	740	710

*\* Numbers are rounded to the nearest 10 trips*



# Where People Will Arrive From And Travel To



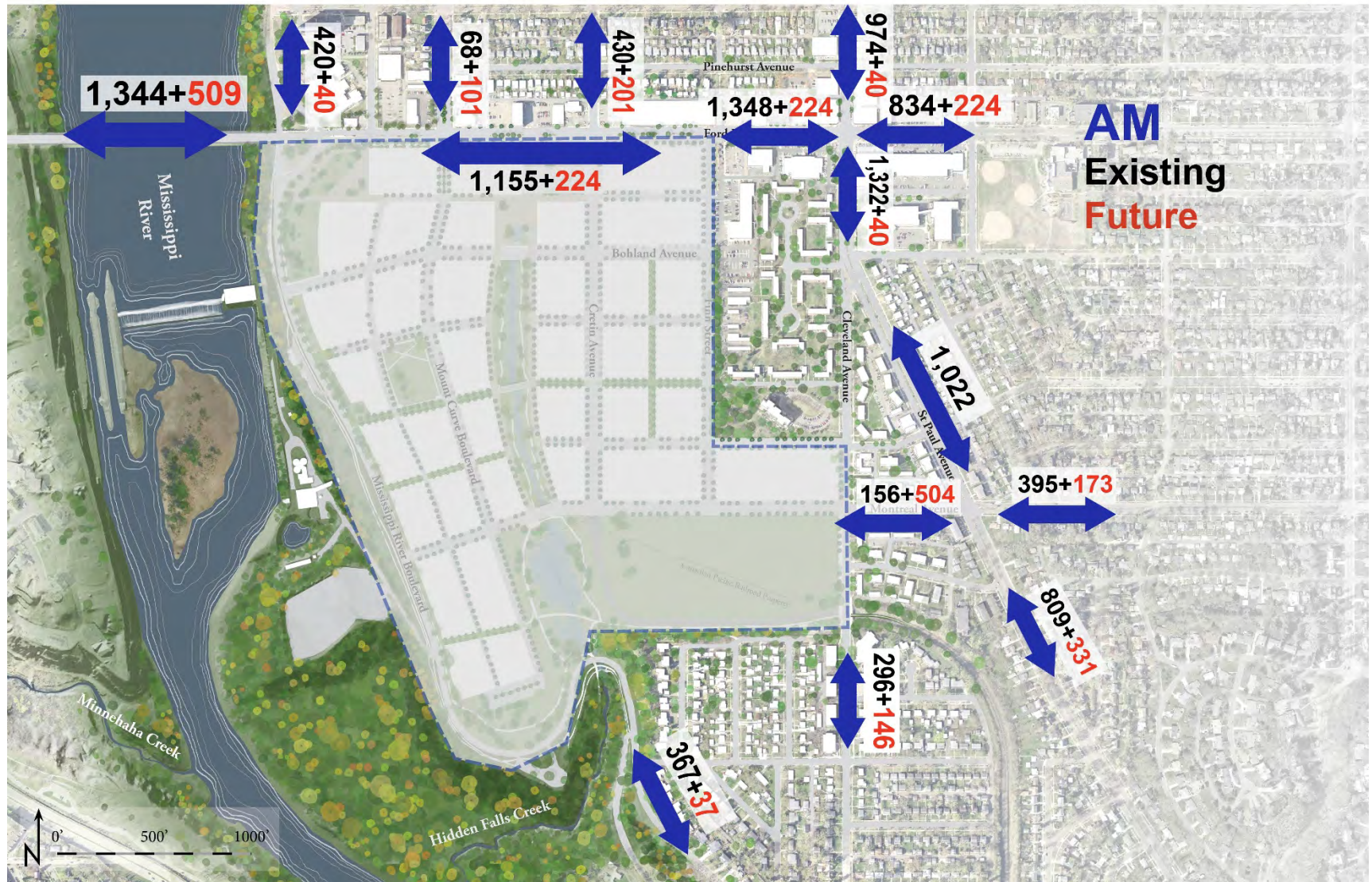


# Trip Distribution



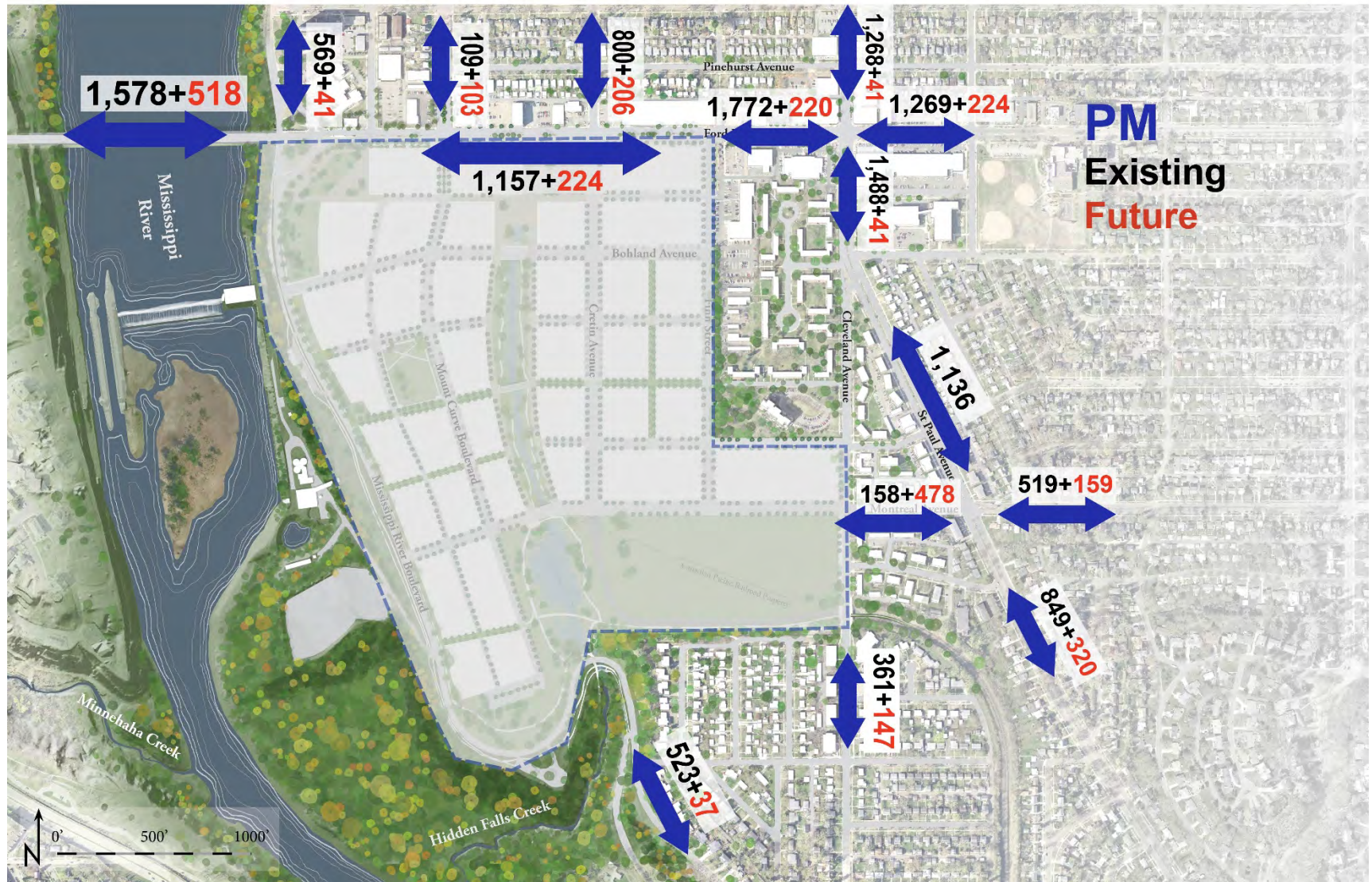


# Vehicular Volumes at AM Peak Hour





# Vehicular Volumes at PM Peak Hour





# Existing Intersection Level of Service





# After-Development Intersection Level of Service





# Existing Intersection Level of Service





# After-Development Intersection Level of Service





# Planned Intersection Improvements

Intersection	Improvements
<b>Ford Parkway/ Mount Curve Boulevard</b>	<ul style="list-style-type: none"> <li>▪ Signalize intersection</li> <li>▪ Provide NB/SB Left-turn lanes</li> <li>▪ Extend WB left-turn lane</li> </ul>
<b>Ford Parkway/ Cretin Avenue</b>	<ul style="list-style-type: none"> <li>▪ Add NB left- and right-turn lanes*</li> <li>▪ Extend WB left-turn lane</li> <li>▪ Remove part of the median</li> <li>▪ EB right-turn lane*</li> </ul>
<b>Cleveland Avenue/ Montreal Avenue</b>	<ul style="list-style-type: none"> <li>▪ Signalize intersection</li> <li>▪ Add west leg</li> </ul>
<b>Montreal Avenue/ St. Paul Avenue</b>	<ul style="list-style-type: none"> <li>▪ Signalize intersection</li> <li>▪ Requires removal of part of the median</li> <li>▪ EB/WB left-turn lanes</li> </ul>
<b>Cleveland Avenue/ St. Paul Avenue</b>	<ul style="list-style-type: none"> <li>▪ Optimize signal timing</li> </ul>

\* May Impact Pedestrian/Bicycle Environment. Future Discussion Required.

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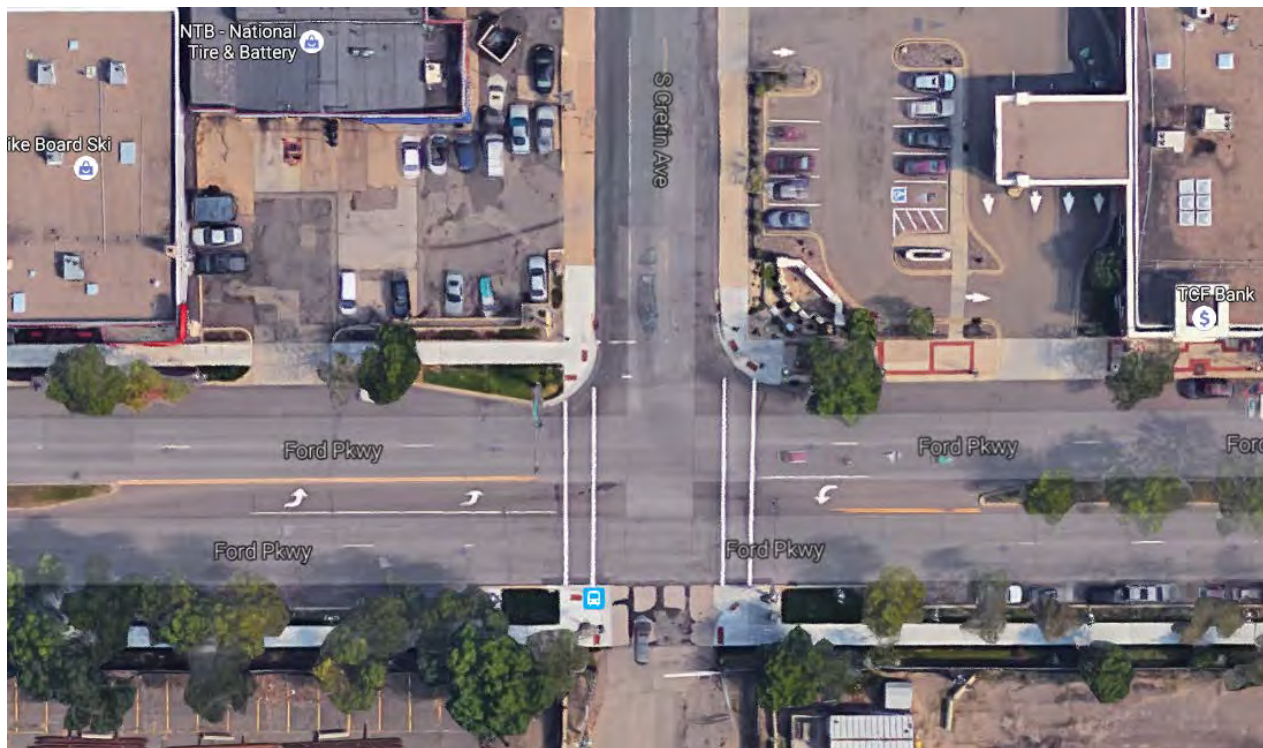
# Planned Intersection Improvements

## Intersection

**Ford Parkway/  
Cretin Avenue**

## Improvements

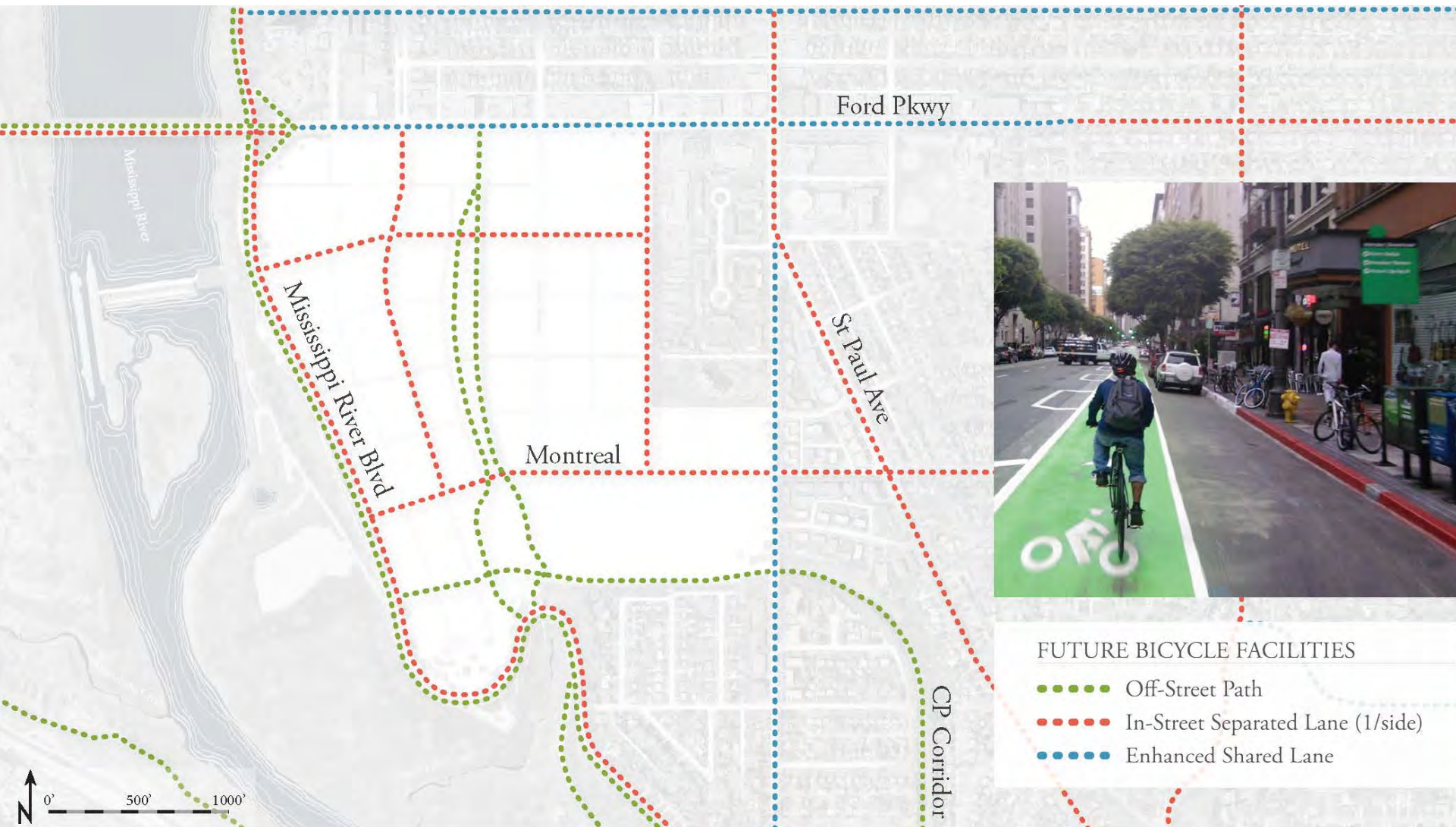
- Add NB left- and **right-turn lanes\***
- Extend WB left-turn lane
- Remove part of the median
- **EB right-turn lane\***



\* May Impact **Pedestrian/Bicycle** Environment. Future Discussion Required. NOVEMBER 2016



# Walking and Biking Network



# Bike/Pedestrian Intersection Level of Service

Intersection	Bicycle Level of Service		Pedestrian Level of Service	
	Existing Configuration	With Recommended Improvements	Existing Configuration	With Recommended Improvements
Ford Parkway/ Mississippi River Boulevard Access Ramps (North and South ramps at Ford Pkwy)	C (55)	C (68)	B (88)	A (98)
Ford Parkway/ Woodlawn Avenue	D (52)	C (58)	C (69)	B (76)
Ford Parkway/Mount Curve Blvd	D (52)	B (75)	C (69)	B (78)
Ford Parkway/Cretin Avenue	D (48)	B (74)	C (68)	B (75)
Ford Parkway/ Finn Avenue	E (30)	C (60)	C (68)	B (81)
Ford Parkway/ Cleveland Avenue	D (49)	C (71)	C (73)	B (83)
Cleveland Avenue/ Saint Paul Avenue	D (50)	C (67)	C (68)	B (79)
Cleveland Avenue/Montreal Avenue	C (55)	B (75)	B (90)	A (94)
Saint Paul Avenue/Montreal Avenue	D (49)	B (79)	C (70)	B (87)
E. 46th Street/46th Avenue S. (Minneapolis)	D (40)	C (60)	C (72)	B (75)
Davern Street/Montreal Avenue	D (53)	B (75)	B (80)	B (89)



# Questions and Answers

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# Topic Tables

1. Traffic Study – Overview
2. Traffic Study – Method
3. Traffic Study – Traffic Counts and Intersections
4. Traffic Study - Results
5. Corridor Sections
6. Transportation Network
7. Vehicular Network
8. Bike-Ped Network
9. Parking System



## How to engage:

- Circulate among the tables
- Consider the topic at each
- Ask questions or chat with the table facilitator and others at the table
- Provide input, if desired



# Future meetings

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Ford Zoning, Public Realm  
and Transportation Meeting

Wednesday, November 30

6:30 – 8:00 p.m.

Summit Brewing

Ford Task Force Meetings

Monday, December 5

Monday, December 12

6:30 – 8:30 p.m.

St. Luke Lutheran

1807 Field Ave



# Stay Connected

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[stpaul.gov/21stCenturyCommunity](http://stpaul.gov/21stCenturyCommunity)

- Provide input at Open St Paul - Ford
- Sign up for E-newsletters & Notifications
- Go to source for information on the project



[Facebook.com/cityofsaintpaul](https://Facebook.com/cityofsaintpaul)



[@cityofsaintpaul](https://twitter.com/cityofsaintpaul)



The Most  
Livable City  
in America



# Thank You!



Ralph DeNisco

617-279-0932

[RDeNisco@nelsonnygaard.com](mailto:RDeNisco@nelsonnygaard.com)