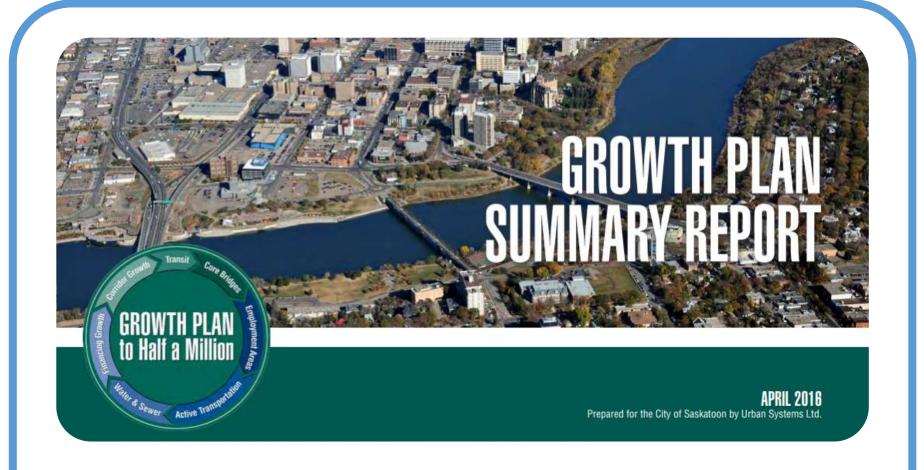
## Active Transportation in Saskatoon

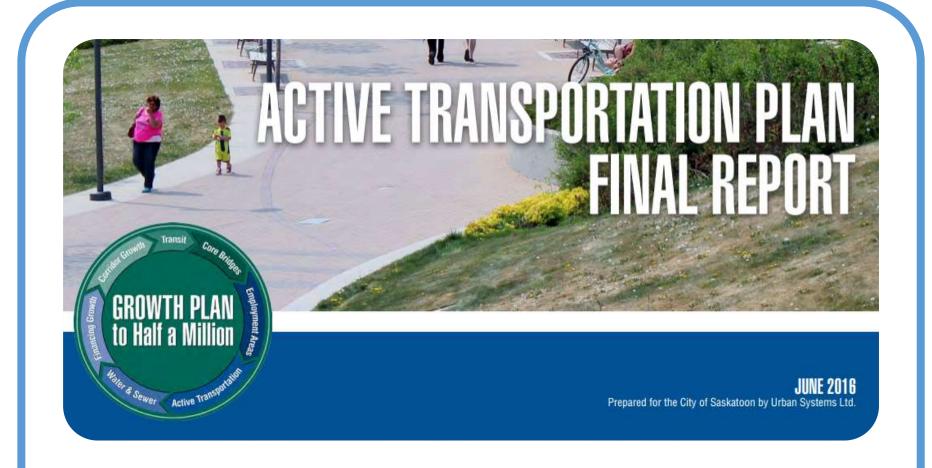


The **Growth Plan to Half a Million** (Growth Plan) was developed over two and a half years through a five-phase public engagement process called Growing Forward! Shaping Saskatoon.

The Growth Plan is made up of several themes that, when pieced together, form a new growth model for Saskatoon:

- Corridor Growth Encouraging growth and development near our existing major corridors
- Transit Making transit more attractive to more people as we grow
- Core Area Bridges Making the most of our existing road infrastructure
- Employment Areas Ensuring we have the right amount of employment in the right areas
- ACTIVE TRANSPORTATION Providing more choices for how people move around the city
- Financing Growth Planning ahead for the costs of growth

Adopted in principle by City Council on April 25, 2016, the Growth Plan is about making choices to proactively manage the changes associated with growth, creating a city that is vibrant and attractive to future generations. A vibrant Saskatoon has a diverse mix of housing, commercial, social, cultural, and recreational opportunities that are universally accessible by all modes of transportation, including walking, cycling, transit, and driving.



The purpose of Saskatoon's Active Transportation Plan (AT Plan) is to increase transportation choices within the city and establish a long-term vision for active transportation that complements the City of Saskatoon's existing strategic vision.

The AT Plan identified five key goals for improving walking and cycling in Saskatoon:

- 1 MORE walking and cycling
- 2 SAFER walking and cycling
- More PLACES for walking and cycling
- Build a **CULTURE** for active transportation
- **ENCOURAGE** other forms of active transportation

Adopted in principle by City Council on June 27, 2016, the AT Plan will contribute to increased transportation options by improving the accessibility, comfort, convenience and safety of active transportation in Saskatoon, as the city grows to half a million people over the next 30 to 40 years.



The City of Saskatoon is committed to providing safe streets for users of all ages, abilities, and modes of travel. The **Complete Streets Policy and Design Guide**, was developed to help achieve that goal through a more balanced approach to street design that accommodates the safe movement of people by multiple modes and of all ages and abilities.

The principles of Complete Street design include:

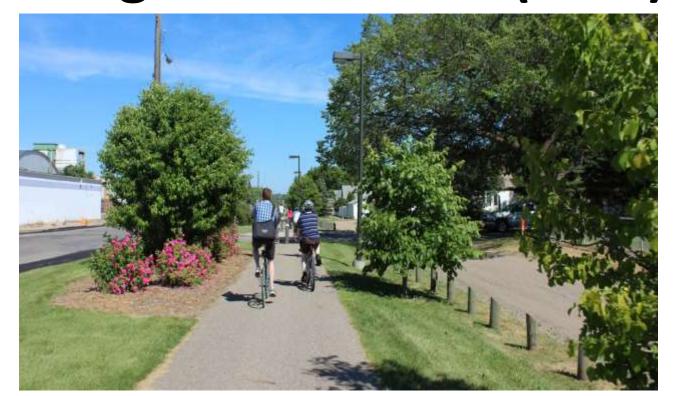
- Serve and support existing and planned land use and built form context;
- Encourage people to travel by walking, bicycling, and transit;
- Provide transportation options for people of all ages and abilities;
- Enhance the safety and security of urban streets;
- Create a network of streets that offers mobility options for all users;
- Provide opportunities for improved health and recreation to people in the community;
- Promote the economic well-being of both businesses and residents;
- Create public space within the street corridor.

Adopted in principle by City Council on October 22, 2017, the Complete Streets Policy and Design Guide will help Saskatoon to plan, design, operate and maintain existing and new streets to effectively support movement of people of all ages and levels of mobility.

## Active Transportation (AT) Plan | Bicycle Network Principles

### **AT Plan Network Facility Types**

### All Ages & Abilities (AAA)



Multi-Use Pathway



Bicycle Boulevard



Protected Bicycle Lane



Raised Cycle Track

### Secondary (non-AAA)



On-Street Bicycle Lane



Buffered Bicycle Lane



Shared Use Lanes (sharrows)



**Local Street** 

### City Wide Cycling Network Principles

A well-designed cycling network needs to be visible, intuitive and provide connections between destinations and neighbourhoods.

Ideally, a cycling network serves users of all ages and abilities – in other words, people from age 8 to age 80 – offering practical route options for those who are interested in cycling, but who may not be comfortable riding on busy streets with high traffic volumes and speeds.

The design and development of a long-term bicycle network for Saskatoon is based on five network planning principles:

- Provide an interconnected system of facilities that is **COMFORTABLE** and attractive for all users.
- Increase **COVERAGE** to ensure all residents are within 400m of a designated bicycle route. The designated route may include both AAA and non-AAA facilities.
- Focus on high-quality **CONNECTIONS** to and from downtown with all areas of the city and create a downtown network.
- Provide a network that provides direct **ACCESS** to major shopping centres, key employment areas, schools, and recreational areas/facilities.
- 5 IMPROVE and connect to existing cycling routes.

## All Ages and Abilities (AAA) Bicycle Network Principles

## SAFETY

People riding bicycles are vulnerable road users because they have less protection and travel more slowly than motor vehicles.

### An All Ages and Abilities Network should:

- ✓ Minimize and consolidate conflict points between modes (for example, at intersections or driveway crossings).
- ✓ Reduce speed and enhance visibility at intersections and conflict points.
- ✓ Provide each mode with a clearly defined space for travel.
- ✓ Provide consistent treatments to promote predictable behavior for all users.
- Ensure facilities are easy to maintain to facilitate safe cycling conditions.

## COMFORT

Attention to user comfort is an important part of attracting more people to bicycling as a mode of travel.

### An All Ages and Abilities Network should:

- ✓ Separate bicycles from motor vehicles when speeds are over 30 km/hr and traffic volumes exceed 1,500 vehicles per hour.
- ✓ Ensure the amount of delay for people riding bikes is reasonable and balanced with other users.
- ✓ Minimize encounters between people riding bikes and those driving vehicles.
- ✓ Accommodate side by side cycling and passing movements, where feasible.
- ✓ Provide smooth vertical transitions and pavement surfaces free from obstructions.

## CONNECTIVITY

People who ride bicycles need a network of continuous low-stress routes that provide connections to local and city-wide destinations.

### An All Ages and Abilities Network should:

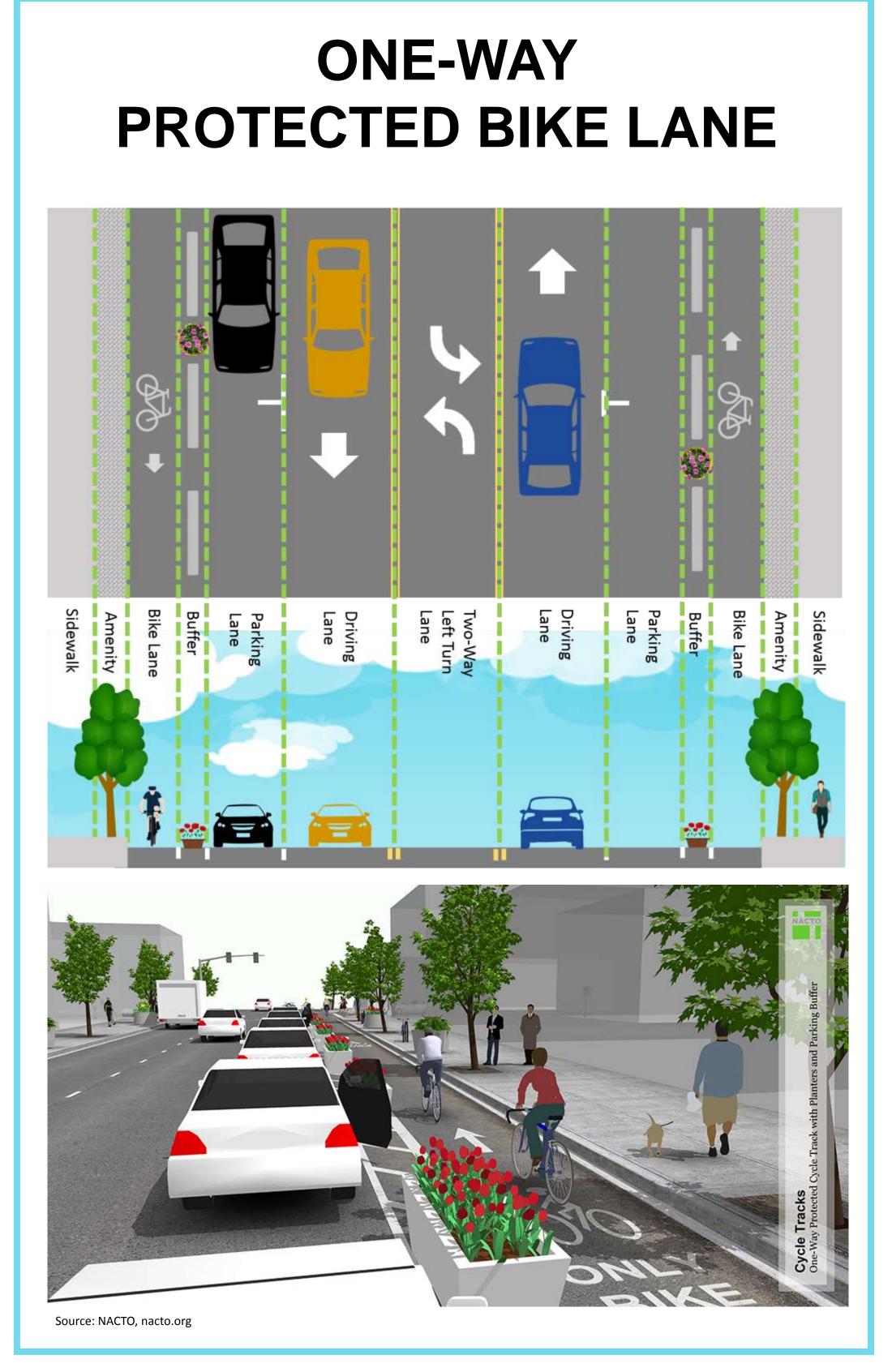
- ✓ Provide direct and convenient connections that minimize detours.
- ✓ Connect to local and city-wide destinations.
- ✓ Integrate into the larger multimodal transportation network.
- ✓ Provide seamless transitions between different types of cycling facilities (for example: from a raised cycle track to a multiuse pathway).
- Ensure key destinations and regional routes are interconnected with the bicycle network.

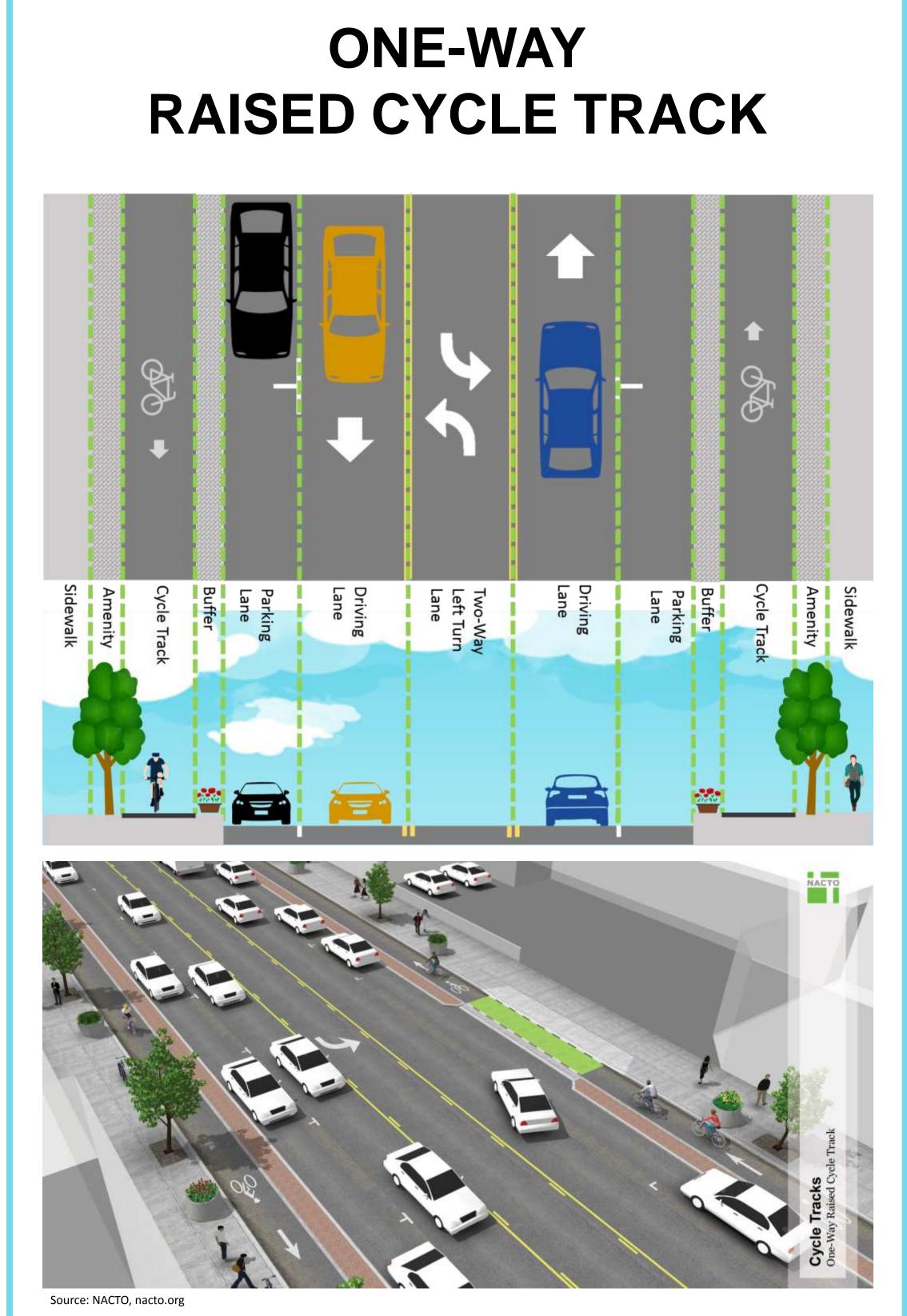
## EXAMPLES OF AAA FACILITY TYPES

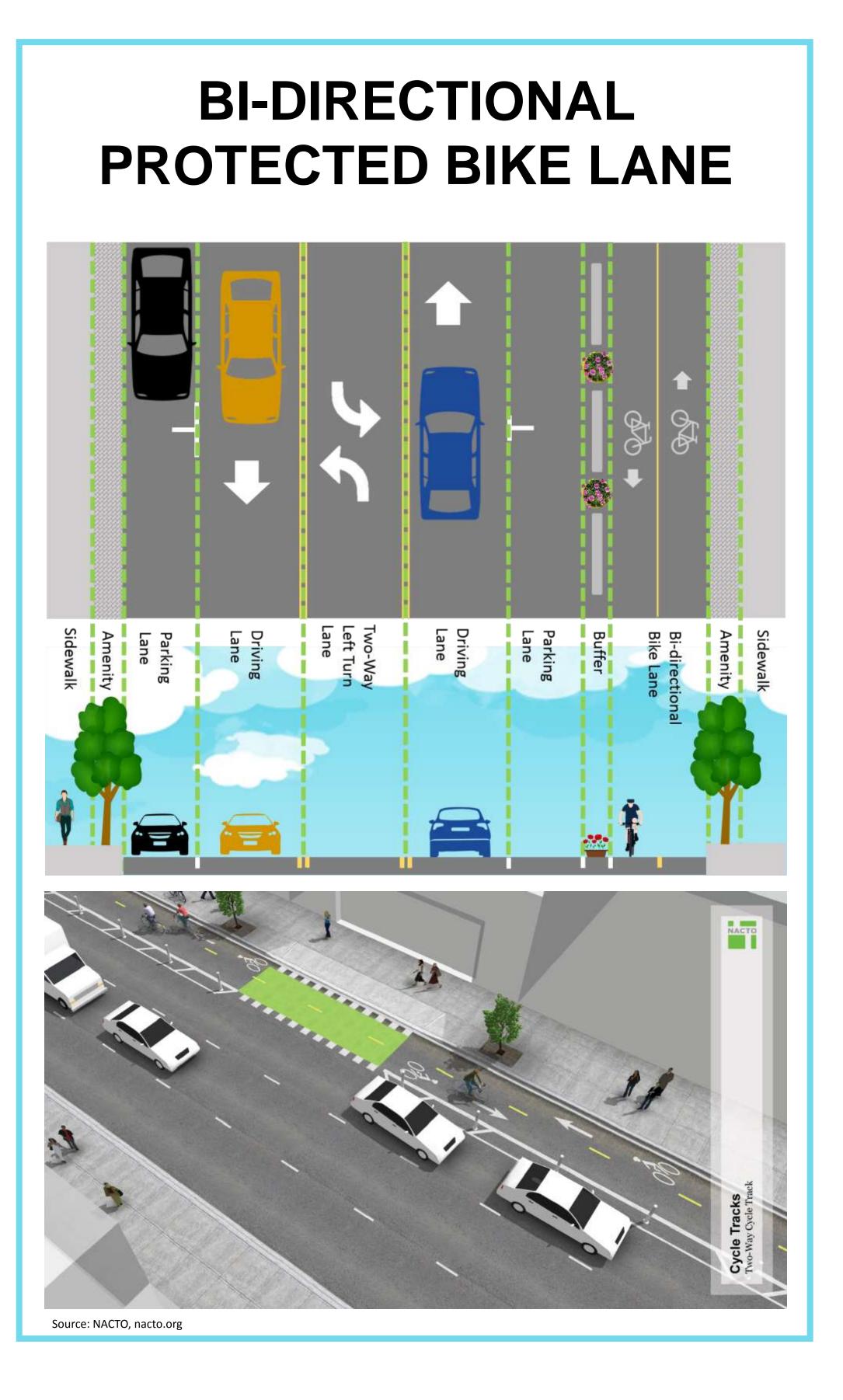
An all ages and abilities (AAA) facility is typically used on streets where:

- volume of vehicles is greater than 1,500 vehicles per hour, and
- operating speeds are over 30km per hour.

The following are three types of AAA facilities that are typically used in urban settings, such as downtown Saskatoon.

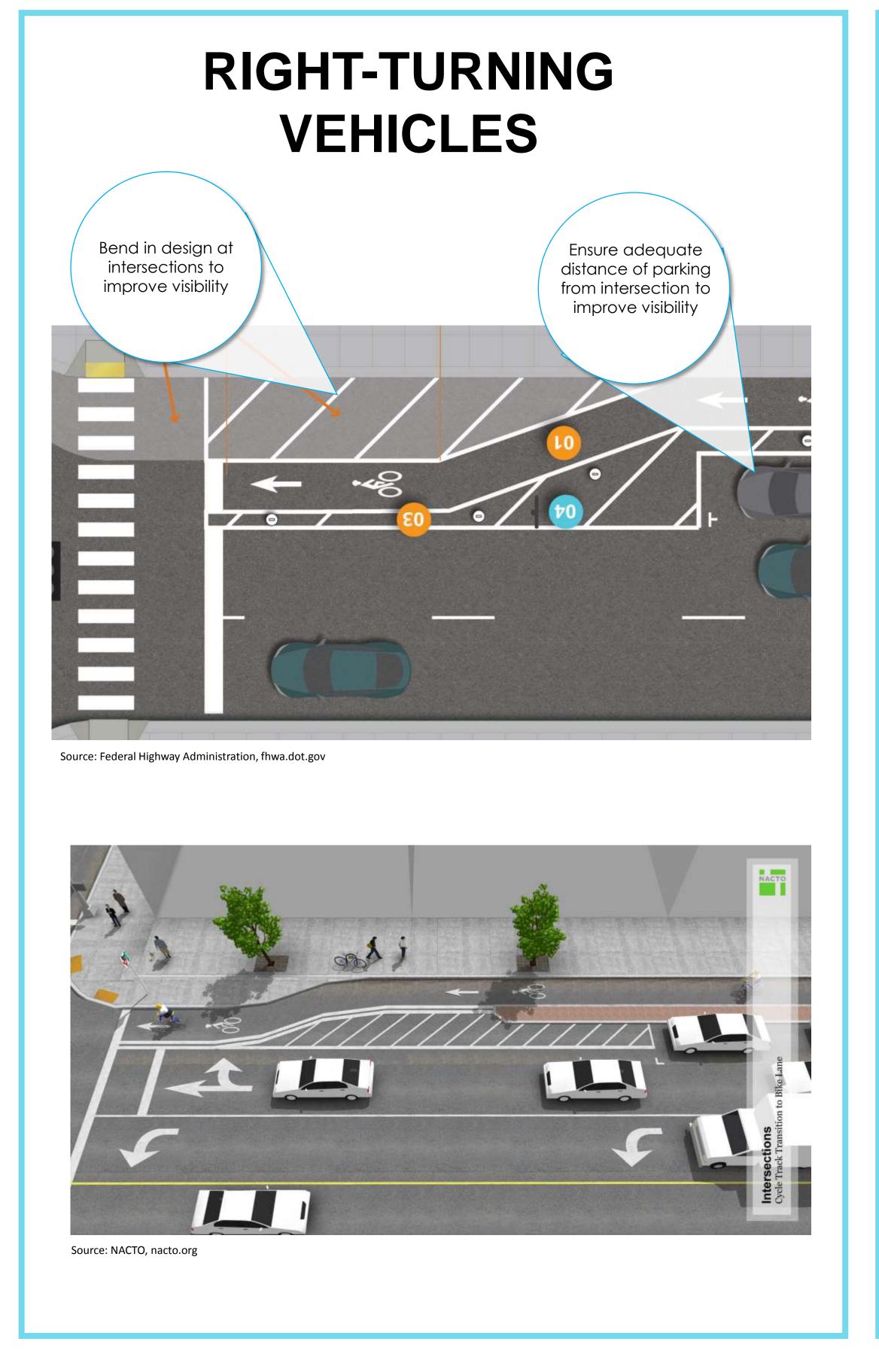


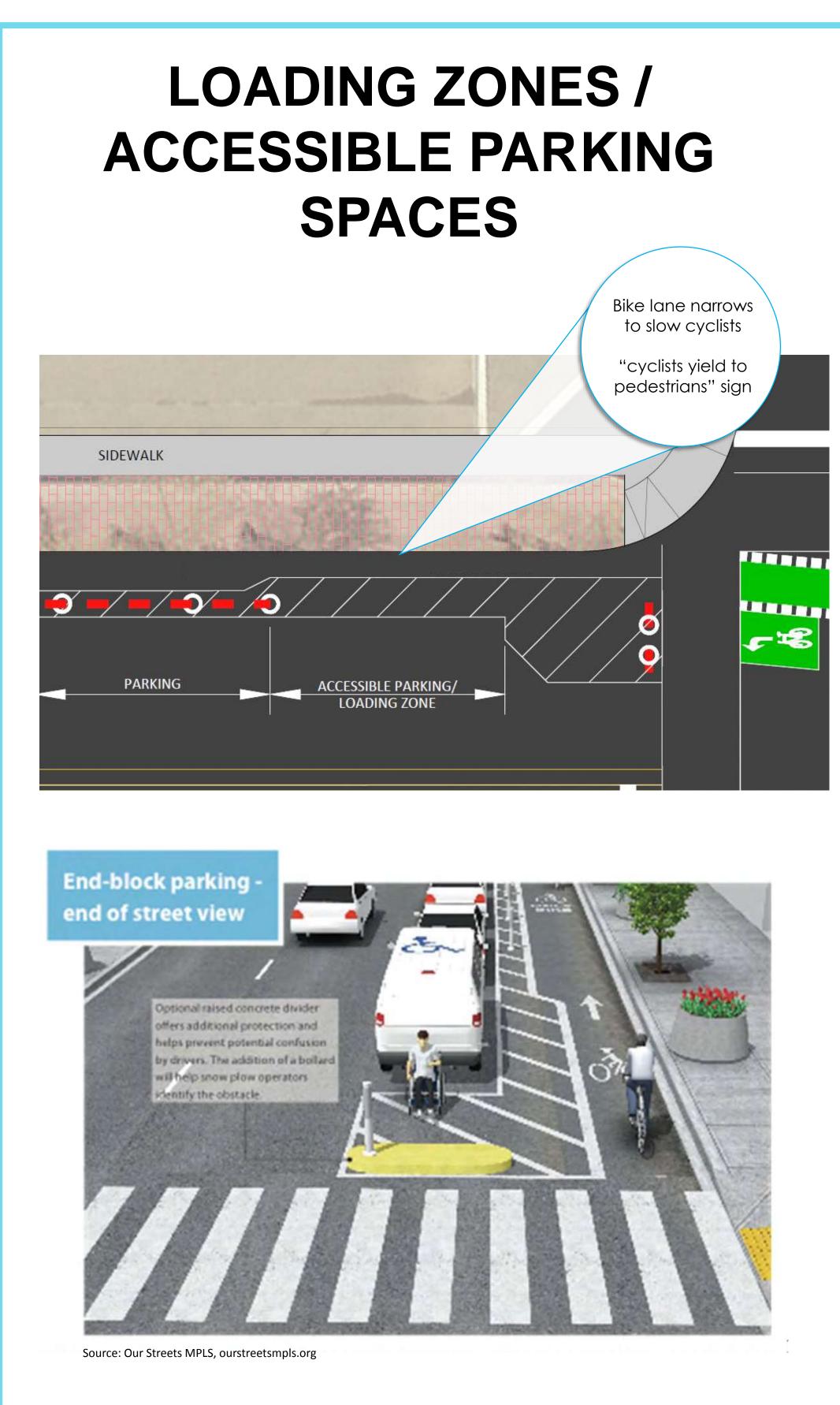


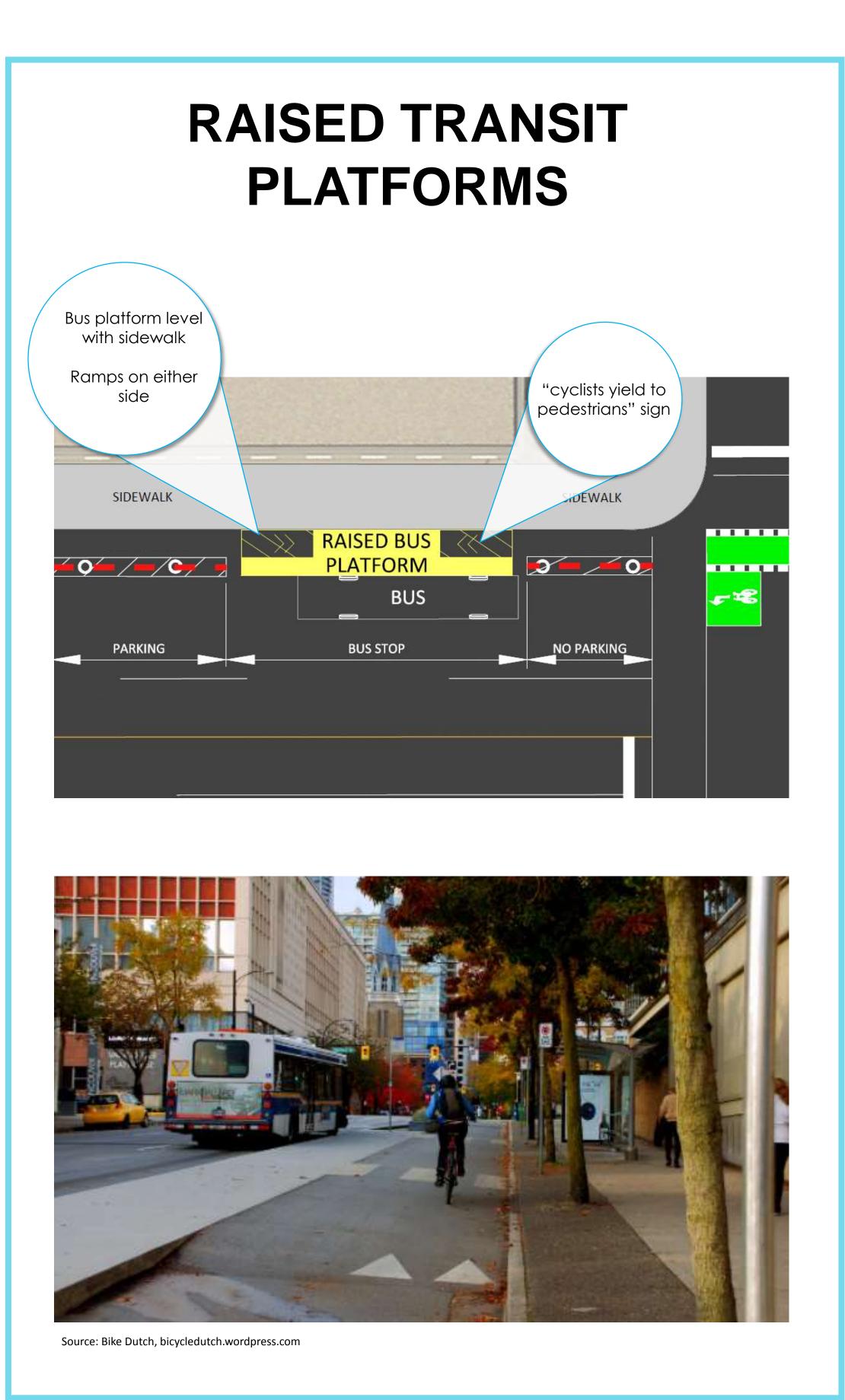


## EXAMPLES OF DESIGN CONSIDERATIONS

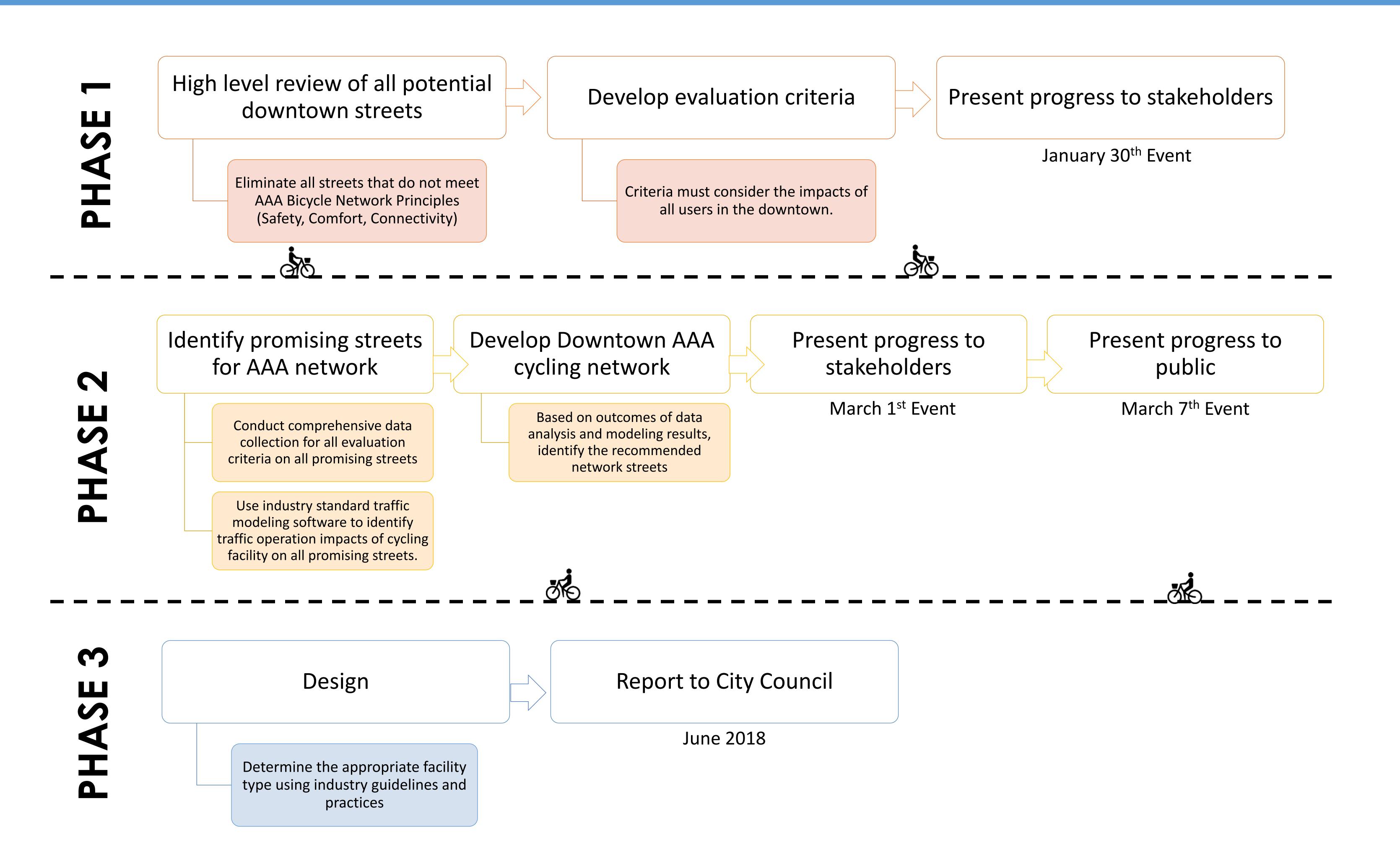
Integration with other users of the street is important to the successful function of the street. Conflicts between users are inevitable, but design treatments can be applied to ensure all users can safely navigate the space.



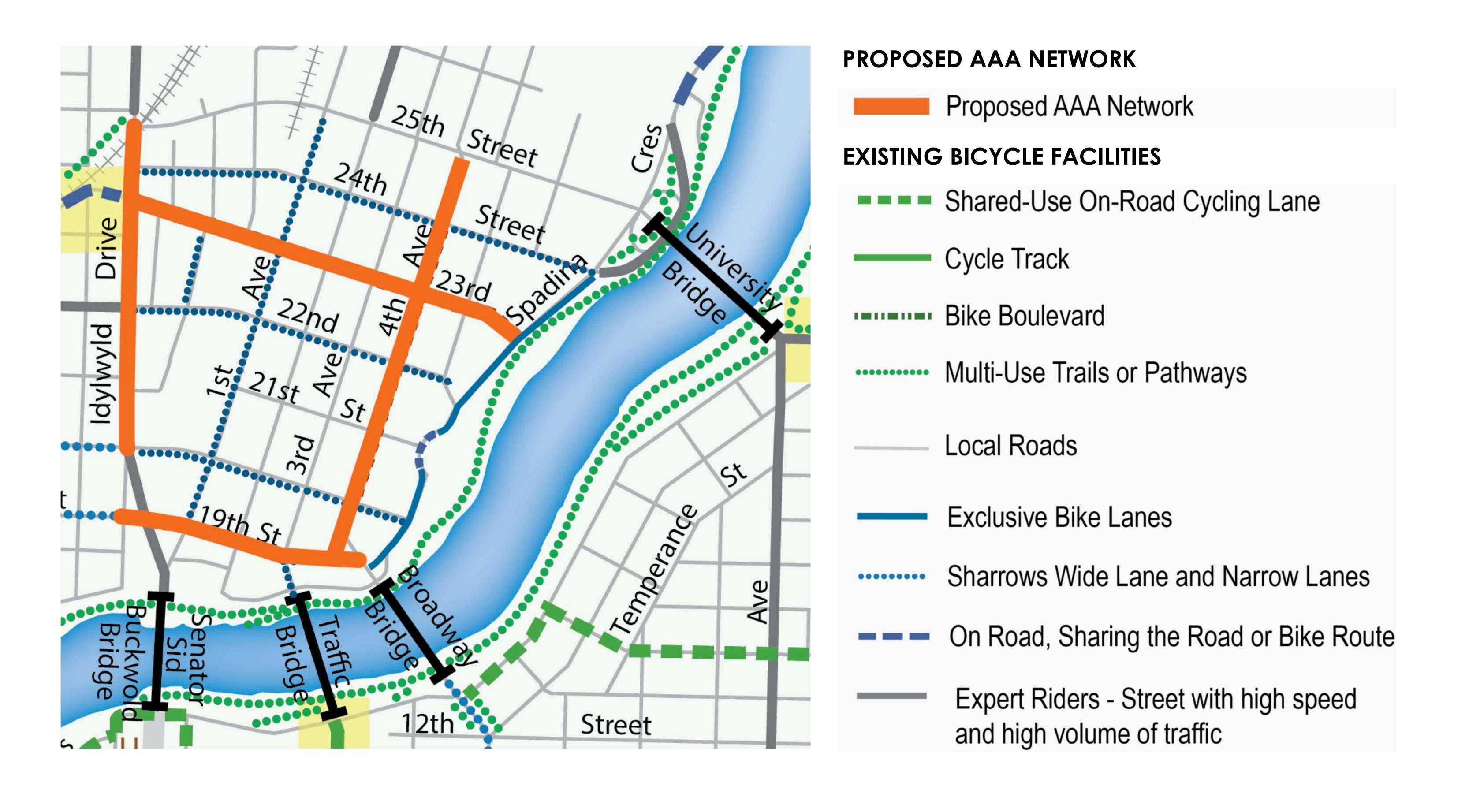




## PROJECT TIMELINE



## PROPOSED AAA NETWORK: Map of Recommended Streets



# PROPOSED AAA NETWORK Connections To Existing And Proposed AAA Facilities

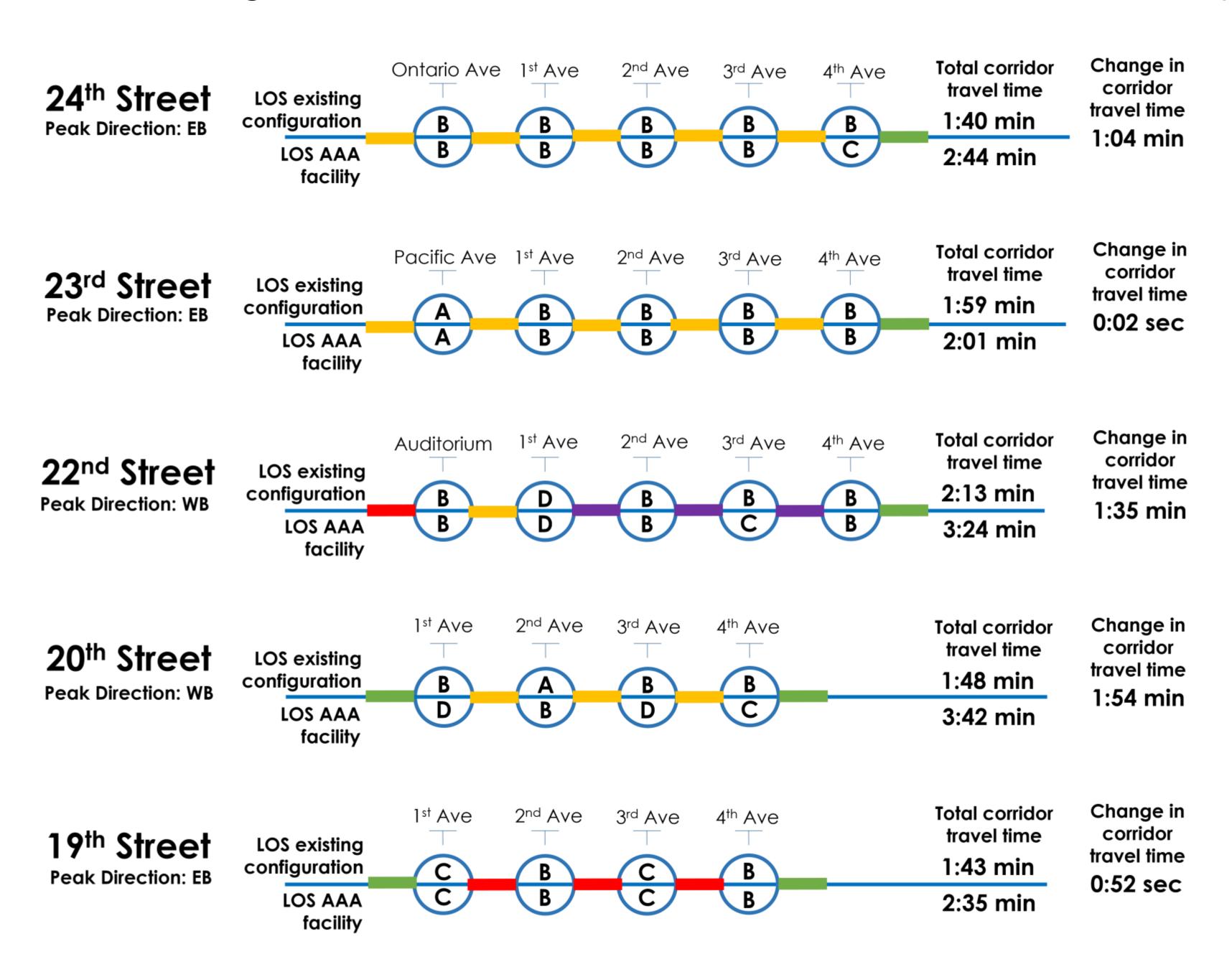
Connections to other AAA facilities are important to support the over city-wide network.

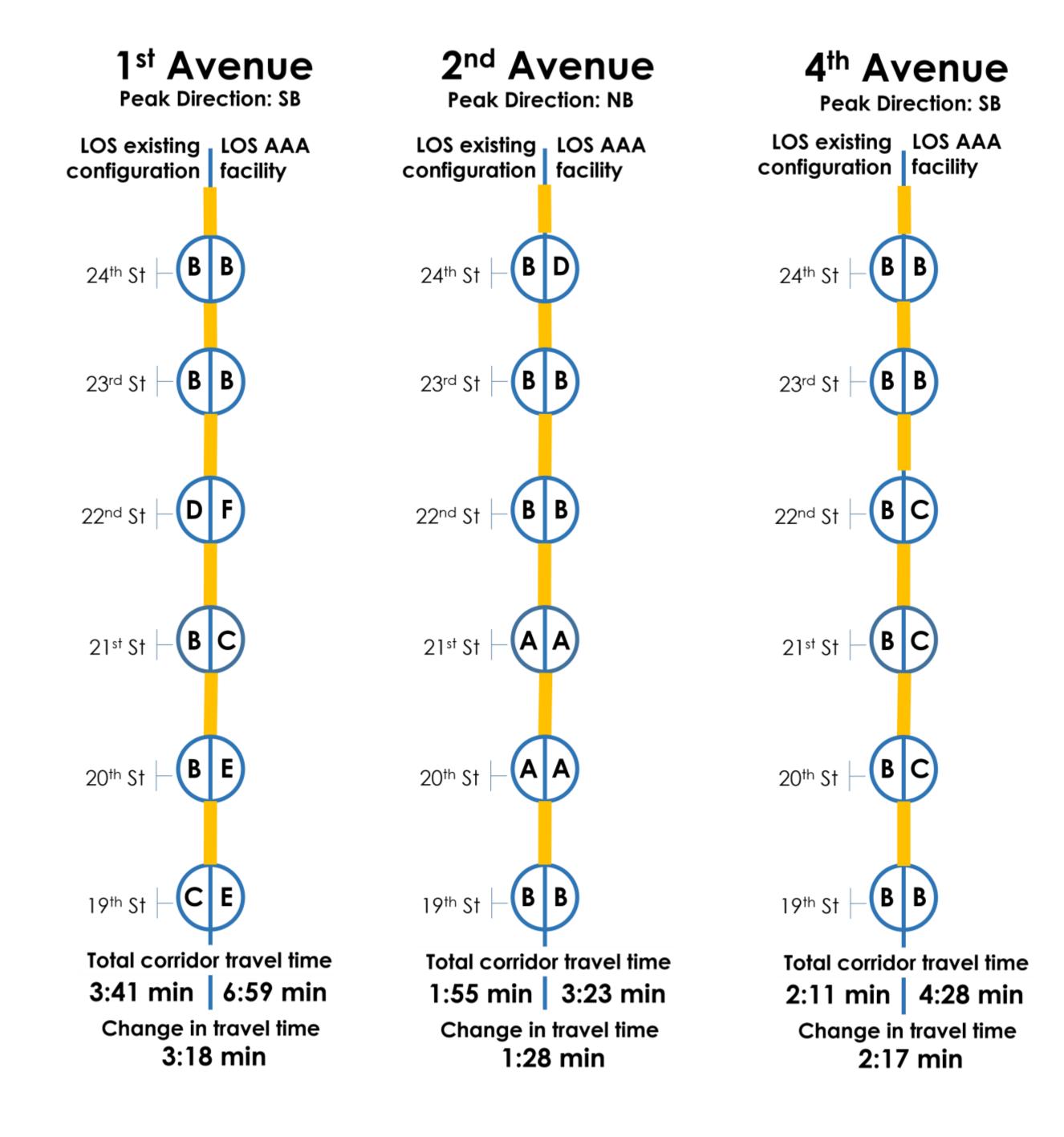
This map shows how the proposed network connects to existing AAA cycling facilities and proposed cycling facilities within and beyond the study area.



## TRAFFIC LEVEL OF SERVICE & TRAVEL TIME ANALYSIS [PM PEAK PERIOD]

The City of Saskatoon uses the Highway Capacity Manual (HCM) to determine Level of Service (LOS). LOS is a measure of average delay per motor vehicle at each intersection. The illustrations below show the change in LOS at each intersection and the change in travel time for each corridor when a AAA facility is added to the street.





### **Legend**

Road Configuration with AAA facility

4 driving lanes with left turn bays 2 driving lanes with left turn bays 4 driving lanes (no turn bays) 2 driving lanes (no turn bays)



Intersection

Intersection Level of Service Based on average vehicle delay for all movements

### **Level of Service**

Level of	Average Delay per Vehicle
Service	(seconds)
A	0 -10
В	> 10 - 20
С	> 20 - 35
D	> 35 - 55
E	> 55 - 80
F	> 80

### Traffic Analysis Assumptions

- Transit Mall on 23<sup>rd</sup> Street is no longer present. Through traffic movements along 23<sup>rd</sup> Street have been added.
- Traffic Bridge is open.
- Parcel YY in River Landing is built out (increase in traffic due to development).
- Bus Rapid Transit (BRT) along 3<sup>rd</sup> Ave: all analyses take into account the changes in travel pattern in the downtown.

## PROPOSED AAA NETWORK: Overview of Network Decision Making

Downtown streets support a number of different land uses through a variety travel of modes. When assessing the appropriate streets for a AAA cycling facility, it is important to consider the impacts to all users in the Downtown.

The charts below provide a high-level overview of the detailed analysis for each of the streets considered for a AAA facility.

### East – West Streets

	19 <sup>th</sup> Street	20 <sup>th</sup> Street	22 <sup>nd</sup> Street	23 <sup>rd</sup> Street	24 <sup>th</sup> Street
Cycling Network (Linkages & Coverage)					
<b>0</b>	2 Bridge Connections 34% Coverage of Downtown	0 Bridge Connections 49% Coverage of Downtown	0 Bridge Connection 67% Coverage of Downtown	1 Partial Bridge Connection 71% Coverage of Downtown	1 Partial Bridge Connection 58% Coverage of Downtown
Motor Vehicles (Level of Service & Travel Time)	Road Configuration no AAA: 4 lanes with left turn bays Road Configuration with AAA:	Road Configuration no AAA: 4 lanes with left turn bays	Road Configuration no AAA: 4 lanes with left turn bays	Road Configuration no AAA: 4 lanes with no turn bays Road Configuration with AAA:	Road Configuration no AAA: 4 lanes with no turn bays  Road Configuration with AAA:
	4 lanes with left turn bays	Road Configuration with AAA: 2 lanes with left turn bays	Road Configuration with AAA: 4 lanes with no turn bays	2 lanes with left turn bays	Road Configuration with AAA: 2 lanes with left turn bays
Business (Parking)	1177 (17) (0)	(110) (20) ( 20)	10/1 // 21 // 22)	(102) (00) (12)	112414414591
Transit	[17] (17) (0)	[118] (80) {-38}	[96] (63) {-33}	[103] (90) {-13}	[124] (66) {-58}
Transit (Future BRT)	Curb running BRT – 3 <sup>rd</sup> Ave to 4 <sup>th</sup> Ave (no stations)	No BRT	Curb Running BRT – 3rd Ave to Idylwyld Dr (includes stations)	No BRT	No BRT

### North - South Streets

	1 <sup>st</sup> Avenue	2 <sup>nd</sup> Avenue	3 <sup>rd</sup> Avenue	4 <sup>th</sup> Avenue	Spadina Cres
Cycling Network (Linkages & Coverage)					
<b>36</b>	0 Bridge Connections 67% Coverage of Downtown	0 Bridge Connections 78% Coverage of Downtown	1 Bridge Connection 77% Coverage of Downtown	1 Bridge Connection 70% Coverage of Downtown	1 Bridge Connection 56% Coverage of Downtown
Motor Vehicles (Level of Service &					
Travel Time)	Road Configuration no AAA: 4 lanes with left turn bays Road Configuration with AAA:	Road Configuration no AAA: 2 lanes with left turn bays Road Configuration with AAA:	Road Configuration no AAA: 4 lanes with left turn bays Road Configuration with AAA:	Road Configuration no AAA: 4 lanes with no turn bays Road Configuration with AAA:	Road Configuration no AAA: 2 lanes with no turn bays Road Configuration with AAA:
	2 lanes with left turn bays	2 lanes with left turn bays	2 lanes with left turn bays	2 lanes with left turn bays	2 lanes with no turn bays
Business (Parking)				X	
	[120] (72) {-48}	[322] (146) {-176}	[156] (102) {-52}	[152] (94) {-58}	[92] (12) {-80}
Transit (Future BRT)	No BRT	No BRT	Centre Running BRT – 25 <sup>th</sup> St to 19 <sup>th</sup> St	No BRT	No BRT

Parking Numbers: [existing # of spaces] (# of spaces with AAA facility) {change in # of spaces}

#### TRAFFIC ANALYSIS ASSUMPTIONS

- Transit Mall on 23<sup>rd</sup> Street is no longer present. Through traffic movements along 23<sup>rd</sup> Street have been added.
- Traffic Bridge is open.
- Parcel YY in River Landing is built out (increase in traffic due to development).
- Bus Rapid Transit (BRT) along 3<sup>rd</sup> Ave: all analyses take into account the changes in travel pattern in the downtown.

# AAA EVALUATION CRITERIA: COMPARISON OF NORTH-SOUTH STREETS

Streets Recommended for	Great/Good	Neutral	Poor
Downtown AAA Network	Olddii/ Oddd	1 10 0 11 011	1 0 01

				<b>I</b>		
	Idylwyld Drive	1st Avenue	2nd Avenue	3rd Avenue	4th Avenue	Spadina Cres
		-√i RI	CYCLE NETWO	) D K		
		0.0				
Connectivity North	Great. Extends beyond 25th St.	Good. Extends beyond 25th St, with a slight deflection at Duke St.	Great. Extends beyond 25th St	Great. Extends beyond 25th St	Good. Extends beyond 25th St (4th Ave in a one-way street N of 25th)	Good. Extends north of 25th St. Connects with Meewasin trail system
Connectivity South		Ok. Southbound Terminates at 19 <sup>th</sup> Street, Northbound begins at 20 <sup>th</sup> due to Idylwyld Freeway Ramps.		Great. Terminates at Spadina Cres	Intersection improvements are planned that will improve the connection to the Broadway Bridge	Good. Terminates at 2nd Ave. Connects with Meewasin trail system
Coverage (% of Downtown within 400m of Proposed Facility)	40%	65%	75%	75%	70%	55%
		Linkages to Ex	cisting & Proposec	d AAA Facilities		
Bridges	Road connects directly to Sid Buckwold Bridge but the connection to Sid Buckwold Bridge walkway is	Road connects directly to Sid Buckwold Bridge	Connects to 19th St which connects to Traffic Bridge and	<ul> <li>Great:</li> <li>Connects     directly to Traffic     Bridge</li> <li>Connects to 19th     St which     connects to     Broadway Bridge</li> </ul>	<ul> <li>Northbound         connection from         Broadway Bridge         to 4th on East         Side is OK         Intersection</li> </ul>	<ul> <li>Doesn't connect with Broadway</li> <li>Bridge</li> <li>Connects with Traffic Bridge</li> </ul>
Existing AAA Facilities	<ul> <li>Connects         with Blairmore         Bikeway</li> <li>Connects with         South West         Connector Multi         Use Pathway</li> </ul>	None	2nd Ave becomes 3rd Ave which connects with 33rd Street Multi-Use Pathway	<ul> <li>Connects with 33rd Street Multi- Use Pathway</li> <li>Connects with Cycle Track on Victoria Avenue</li> </ul>	None	Connects to Meewasin trail system
Proposed AAA Facilities		None	None	None	None	None
		Current	and Potential Bicy	cle Traffic		
Key Destinations Served	<ul> <li>Midtown Plaza</li> <li>TCU Place</li> </ul>	<ul> <li>Government of Canada Building</li> <li>Midtown Plaza</li> <li>Scotia Centre</li> </ul>	<ul> <li>Remai Modern</li> <li>River Landing</li> <li>Scotia Centre</li> <li>Lots of retail</li> <li>Lots of restaurants</li> </ul>	<ul> <li>Francis Morrison Library</li> <li>City Hall</li> <li>Sturdy Stone</li> <li>Some retail shops</li> <li>Some restaurants</li> <li>Educational intuitions</li> </ul>		<ul> <li>General Offices</li> </ul>
		PEOPLE WALKING 🎊				
Opportunity for Improvements	IMPROVEMENTS	Yes. Opportunity to improve crossings for pedestrians north of 22nd St	Already a pedestrian priority street with significant pedestrian amenities & short crossing distances.	Yes. Possible opportunity to make improvements through BRT	Yes. Increases separation of pedestrians from traffic	<ul> <li>East side has great pedestrian amenities</li> <li>West side could benefit from improved pedestrian facilities</li> </ul>

## AAA EVALUATION CRITERIA: COMPARISON OF NORTH-SOUTH STREETS



	Idylwyld Drive	1st Avenue	2nd Avenue	3rd Avenue	4th Avenue	Spadina Cres
			CYCLIST SAFET	Y F		
		С	onflict with Vehic	les		
Motor Vehicles per Day (Average Annual Daily Traffic)	28,000 – 31,000 2016 COS AADT	13,000 – 22,000* *estimated	5,000 - 16,000* *estimated	7,000 – 9,000* *estimated	12,000 – 22,000* *estimated	6,000 – 9,000 2016 COS AADT
		P	EOPLE DRIVIN	G		
		Automobile	travel time [PM	Peak Period]		
Peak Direction		Southbound	Northbound		Southbound	
of Travel		300111000110	Northbound		300111000110	
Travel Time (existing configuration)	Analysis is being completed through Imagine	3:41 min	1:55 min	Not calculated due to BRT being	2:11 min	Minimal change
Travel Time (AAA facility)	Idylwyld project	6:59 min	3:32 min	selected for this street	4:28 min	
Change in Travel Time		3:18 min	1:28 min		2:17 min	
			TRANSIT 2			
		Tı	ransit Stop Conflic	cts		
Current # of Stops	0	6	2	12	3	0
Future # of Stops	0	0	0	3	0	0
			Transit Operation	S		
Current Transit Route	No	Yes	Yes	Yes	Yes	No
Future Transit Route	Not identified for future bus route	Not identified for future bus route	Not identified for future bus route	Identified as Bus Rapid Transit Route	Not identified for bus route	Not identified for bus route
			BUSINESS			
Street Environment	Average activity: 35 building entrances	Average activity: 54 building entrances	High activity: 124 building entrances	High activity: 96 building entrances	Average activity: 41 building entrances	Average activity: 28 building entrances
	(3.8 per block face)	(4.5 per block face)	(8.8 per block face)  Parking	(6.8 per block face)	(3.4 per block face)	(4.6 per block face)
Current # of Spaces	0	120	322	156	152	92
# of Spaces with	0	72	146 (Angle parking converted to parallel parking)	102	94	12 (Parking on west side removed)
cycling facility Change in # of Spaces^	0	-48	-176	-54	-58	-80

### **TRAFFIC ANALYSIS ASSUMPTIONS**

- Transit Mall on 23<sup>rd</sup> Street is no longer present. Through traffic movements along 23<sup>rd</sup> Street have been added.
- Traffic Bridge is open.
- Parcel YY in River Landing is built out (increase in traffic due to development).
- Bus Rapid Transit (BRT) along 3<sup>rd</sup> Ave: all analyses take into account the changes in travel pattern in the downtown.

^ Due to removal of parking at intersections and on each side of driveways to improve visibility/sightlines.

## AAA EVALUATION CRITERIA: COMPARISON OF EAST-WEST STREETS

Streets Recommended for	Great/Good	Neutral	Poo
Downtown AAA Network			

	19th Street	20th Street	22nd Street	23rd Street	24th Street	25th Street
		is BIC	DRK			
			ges to Surrounding			
Connectivity East	Good. Terminates at 4th Avenue	Great. Terminates at Spadina Cres	Ok. Terminates at Spadina Cres, but deflects south at 5th Ave	Great. Terminates at Spadina Cres	Great. Terminates at Spadina Cres	
Connectivity West	Great. Continues west to Ave M	Great. Continues west to Vancouver Ave	Great. Continues west to City Limits	Good. Continues west to Vancouver Ave, slight deflection at Jamison St	Ok. Terminates at Idylwyld Drive	Ok. Terminates at Idylwyld Drive
Coverage (% of Downtown within 400m of Proposed Facility)	35%	50%	65%	70%	60%	40%
		Linkages to Ex	cisting & Proposed	l AAA Facilities		
Bridges	Great connection to Traffic Bridge & Broadway Bridge	No bridge connections	No bridge connections	Ok connection to University Bridge		Great connection to University Bridge
Existing AAA Facilities	None	None	None	Connects to Blairmore Bikeway	None	Connects to SW Connector MUP
Proposed AAA Facilities	Connects to proposed 19th St protected bike lane (Ave A - Ave H)	Connects to proposed raised cycle track on Idylwyld Drive	Connects to proposed raised cycle track on Idylwyld Drive	Connects to proposed raised cycle track on Idylwyld Drive	Connects to proposed multi- use pathway on Idylwyld Drive	Connects to proposed multi- use pathway on Idylwyld Drive
		Current c	and Potential Bicy	cle Traffic		
Key Destinations Served	<ul> <li>River Landing</li> <li>Remai Modern</li> <li>Farmer's Market</li> <li>Prov. Court</li> <li>Midtown Plaza</li> </ul>	<ul><li>Midtown Plaza</li><li>Several retail shops west of Idylwyld Dr</li></ul>	<ul><li>TCU Place</li><li>Sturdy Stone</li><li>Some office /retail</li></ul>	<ul><li>Francis Morrison</li><li>Library</li><li>City Hall</li><li>Medical Offices</li></ul>	<ul><li>Kinsmen Park</li><li>City Hall</li></ul>	<ul><li>Kinsmen Park</li><li>Police Station</li></ul>
		PEOPLE WALKING 🔅				
		Pedestrian Improventents				
Opportunity for Improvements		Yes. Increased separation from traffic	Yes. Increased separation from traffic	Yes. Increased separation from traffic	Yes. Increased separation from traffic	Somewhat. Already streetscaped

# AAA EVALUATION CRITERIA: COMPARISON OF EAST-WEST STREETS



	19th Street	20th Street	22nd Street	23rd Street	24th Street	25th Street
		C	YCLIST SAFE	TY 🗪 👚		
			onflict with Vehic	·		
Motor Vehicles  per Day  (Average Annual  Daily Traffic)	17,000 – 25,000* *estimated	13,000 – 20,000* *estimated	15,000 – 30,000* *estimated	7,000 – 12,000* *estimated	8,000 – 13,000* *estimated	23,000 – 43,000 2016 COS AADT
		PE	OPLE DRIVI	١G		
		Automobile	travel time [PM	Peak Period]		
Peak Direction of Travel	Eastbound	Westbound	Westbound	Eastbound	Eastbound	
Travel Time (existing configuration)	1:43 min	1:48 min	2:13 min	1:59 min	1:40 min	Not completed as this street was removed from consideration for
Travel Time (AAA facility)	2:35 min	3:42 min	3:24 min	2:01 min	2:44 min	a AAA facility at this time.
Change in Travel Time	0:52 sec	1:54 min	1:35 min	0:02 sec	1:04 min	
		TRANSIT				
		Tr	ansit Stop Confli			
Current # of Stops	5	3	4	9	2	9
Future # of Stops	None Identified	Possibility of future stops	2 BRT Stations	None Identified	None Identified	2 BRT Stations
			Transit Operation			
Current Transit Route	Yes	Yes	Yes	Current transit terminal conflict front 2 <sup>nd</sup> Ave to 3 <sup>rd</sup> Ave	Yes	Yes
Future Transit Route	BRT proposed as curb running from 4th Ave to 3rd Ave	frequency transit	Identified as future center-running BRT route		None identified	BRT proposed as curb running from Spadina to 3 <sup>rd</sup> Ave
			BUSINESS			
Street Environment	Low activity: 7 building entrances (1.2 per block face)	Average activity: 23 building entrances (2.3 per block face)	Average activity: 31 building entrances (3.1 per block face)	Low activity: 21 building entrances (1.5 per block face)	Average activity: 33 building entrances (2.0 per block face)	Low activity: 24 building entrances (1.6 per block face)
Current # of Spaces	17	118	Parking 96	103	124	58
# of Spaces with AAA	17	80	63	90 (Parking added in transit terminal)	66 (Parking removed on south side between Ontario Ave & Idylwyld Dr)	50
Change in # of Spaces^	0	-38	-33	-13	-58	-8

### TRAFFIC ANALYSIS ASSUMPTIONS

- Transit Mall on 23<sup>rd</sup> Street is no longer present. Through traffic movements along 23<sup>rd</sup> Street have been added.
- Traffic Bridge is open.
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- Bus Rapid Transit (BRT) along 3<sup>rd</sup> Ave: all analyses take into account the changes in travel pattern in the downtown.

^ Due to removal of parking at intersections and on each side of driveways to improve visibility/sightlines.