



APPENDIX D

Pedestrian Safety & Connectivity Details



PEDESTRIAN SAFETY & CONNECTIVITY

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[Pace Design Guidelines](#)



MEETING AGENDA & NOTES

SUBJECT: Pedestrian Safety/Connectivity Working Group #1
LOCATION: Ryan Offices
START TIME: 2 PM
END TIME: 3:30 PM
DATE: 4/12/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO: Patty King Jen Louden Curt Pascoe
Mary Mansfield Andy Hynes Kyle Schott
Steve Purduski
Mary Lou Wehrli

Introductions

Background Information

- Group Input Session
- 2009 5th Avenue Study
- Pace Design Guidelines
- 2012 Bus Depot Study

Working Group Action Plan

Group reviewed the goals and action plan

Discussed the Working Group activity Matrix

Commuter and Pedestrian Route Review

- Discussed widening of the sidewalks surrounding the Washington bridge
- Discussed the possibility of aligning 5th and Spring/North
- Commuters will always take the most direct route from point A to B, even if it means walking through brush
- Possibility of opening a tunnel that would go under the tracks from Kendall Park and align with Main St. All group members appeared to be supportive of this
- Difficult to cross Washington at any point in the area as is



- Pedestrian routes on the north side of the tracks are busiest at Loomis and 5th - commuter and school traffic

Box Site Training Session

Open Discussion

Next Meeting Focus:

- Pedestrian Priorities Map
- Review/Discuss Potential Improvements



MEETING AGENDA & NOTES

SUBJECT: Pedestrian Safety/Connectivity Working Group #2
LOCATION: Ryan Offices
START TIME: 2 PM
END TIME: 3:30 PM
DATE: 4/25/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO: Patty King Jen Louden Curt Pascoe
Mary Mansfield Kelly Dunne Kyle Schott
Steve Purduski Rory Fancier
Mary Lou Wehrli Peter Lemmon

Introductions and Recap Mtg #1

- Multiple members heard positive comments from Park Addition residents regarding the closure and cul-de-sac of Sleight north of 5th Ave.

Kimley-Horn Presentation Documents were distributed.

Background Information – Updated on BOX

- Group Input Session - Pending
- 2009 5th Avenue Study – Pedestrian Filtered
- Pace Design Guidelines – Pedestrian Filtered
- 2012 Bus Depot Study – Pedestrian Filtered

Kimley-Horn Presentation

- Pedestrian Priorities Map
 - Commuter and School Routes reviewed
 - Some designated walk routes go west to Mill St. for Pilgrim Addition
 - NCC routes and connections were discussed.
 - KHA to update map as W side of Sleight and Wright do have sidewalks.
 - Loomis and North – Realignment and Safety were discussed.
- Crossing Treatments/Safety Improvements

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- Yield to Pedestrians sign was installed at Scholl and Washington. Residents to see a benefit.
 - Additional Options – Zig Zag pavement markings before walk, school crossing and speed zone signs.
 - Need an at-grade crossing option at Loomis/tracks added to this discussion document.
- Rail Crossing Treatments – KHA to update tunnel photo to accurately reflect the \$3-5 Million price point.
- Rail Crossings – Case Studies
 - ADA via ramps (not stairs)
 - Incorporate elevators/stair towers of pedestrian bridges into buildings for cost efficiency.

5th Ave and Washington Cross Sections – KHA will general street cross sections for review.

Open Discussion

- Reviewed street realignments being discussed in the traffic working group.
- Concern over landscaping buffer along Washington. 5' minimum or just use 10' of hardscape.
- KHA to add a page to the presentation regarding upgrading the Washington underpass (bridge treatments, not sidewalk improvements.)
- Arlington Heights tunnel cost?

Next Meeting Focus:

- Connectivity Improvement Matrix
- Practical Safety Improvements and Costs



MEETING AGENDA & NOTES

SUBJECT: Pedestrian Safety/Connectivity Working Group #3
LOCATION: Ryan Offices

START TIME 2 PM
END TIME: 3:30 PM
DATE: 5/10/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO	Patty King	Jen Louden	Curt Pascoe
	Mary Mansfield	Kelly Dunne	Kyle Schott
	Steve Purduski		Rory Fancier
	Mary Lou Wehrli		Peter Lemmon

Recap Mtg #2

Working Group Update

- Parking – Podium Option and Preferred Parking Locations
- Traffic/Transportation

Connectivity and Safety Improvement Matrix

- Pros/Cons
- Costs
- Washington St. and 5th Avenue Cross Sections

Discuss Pedestrian Working Group Deliverable

Next Meeting Focus:

- Draft Deliverable Review



MEETING AGENDA & NOTES

SUBJECT: Pedestrian Safety/Connectivity Working Group #4
LOCATION: Ryan Offices

START TIME 2 PM
END TIME: 3:30 PM
DATE: 5/24/18

FROM: 5th Avenue Development Team
PHONE: 630-328-1105
EMAIL: 5th.Ave@ryancompanies.com

TO	Patty King	Jen Louden	Curt Pascoe
	Mary Mansfield	Kelly Dunne	Kyle Schott
	Steve Purduski		Rory Fancier
	Mary Lou Wehrli		Peter Lemmon

Recap Mtg #3

Draft Deliverable Review

- Concept Principles
 - WG Comments Received
 - Principles vs. Summary Information
- Working Group Summary Review
- Back Up Documentation Review

Combined Working Group Deliverable Discussion

Combined Working Group Meeting

- Format
- Presenters

Open Discussion

Next Meeting Focus:

- Final Deliverable Review
- Combined Working Group Meeting

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MEETING AGENDA & NOTES

SUBJECT:	Pedestrian Safety/Connectivity Working Group #5	START TIME	2 PM
LOCATION:	Ryan Offices	END TIME:	3:30 PM
		DATE:	5/29/18
FROM:	5 th Avenue Development Team		
PHONE:	630-328-1105		
EMAIL:	5th.Ave@ryancompanies.com		
TO	Patty King	Jen Louden	Curt Pascoe
	Mary Mansfield	Kelly Dunne	Kyle Schott
	Steve Purduski		Rory Fancier
	Mary Lou Wehrli		Peter Lemmon

Recap Mtg #4

Final Pedestrian Deliverable Review

- Working Group Members went through the working group narrative and concept principles, line by line, editing as necessary.
- Additional notes were made and the revision was sent out for final comment on 5/30/18

Combined Working Group Deliverable Discussion

- A high level review of each working group deliverable was completed.
- Working group member questions were discussed.

Combined Working Group Meeting

- Format – Panel Discussion with Ryan acting as facilitator.
- Presenters – Working group member presenters were identified. Further information on exact presentation materials will be given to the group by 5/31/18.

Open Discussion

- Additional discussion regarding the next steps, including the concept process.

CONSIDERATIONS IN FAVOR OF CONSTRUCTING A NEW UNDERPASS CONNECTING KENDALL PARK AND THE DCM LOT

Addressing the combined function of Washington Street vehicular traffic and pedestrian passage is critical to ensuring the overall success of the proposed 5th Avenue Development. The 5th Avenue Development has the potential to be a first-class example of a transit-oriented development for the rest of the country, but the potential of the project will not be fulfilled without complete and safe integration into the existing neighborhoods.

When considering a new pedestrian tunnel along the west side of Washington Street, the following should be given consideration.

- **Infrastructure and long term planning goals.** Municipalities that have constructed pedestrian tunnels in the past 10 years include Lombard, Wheaton, Western Springs, West Chicago, Highland Park, Berkley, Bellwood and Glen Ellyn. Naperville should be on the forefront of this trend and should not forego an opportunity to modernize our infrastructure in a manner that is consistent with a more pedestrian and bicycle friendly future that will be less reliant on automobiles and will emphasize public health and reduced vehicle emissions.
- **Safety.** Multiple pedestrians have already been hit by vehicles on the west side of Washington Street, and one child was killed at the intersection of 5th and Washington. The development will bring more cars and residents into the area. A potential parking garage at the DCM lot will increase the potential for collisions unless a safe alternative to cross the train tracks on the west side of Washington Street is provided.
- **Usage.** Currently, pedestrians utilize Mill Street or the pedestrian crossing options on the east side of Washington Street (i.e., east sidewalk at Washington Street viaduct, Ellsworth Street underpass, Loomis Street at-grade crossing). It is anticipated that a new tunnel connecting Kendall Park and the current DCM lot would redirect existing pedestrian traffic to the new safe, comfortable, and convenient route and increase pedestrian activity in the area. In order to further evaluate the need and benefits associated with the tunnel, an analysis of existing pedestrian activity and future usage of the new tunnel should be completed which could include demographics such as school enrollment, population density, Metra ridership/mode share and future parking locations . This study should capture pedestrian and bicycle activity for residents, students, and commuters.
- **Accessibility.** A new tunnel connecting Kendall Park and the current DCM lot would provide safe and accessible passage for wide segments of Naperville's population, including, but not limited to:
 - Local students who would be able to walk and bike to Washington Jr. High and Naper School, likely reducing the number of parents driving children to school.
 - Bicyclists from the immediate and surrounding neighborhoods.

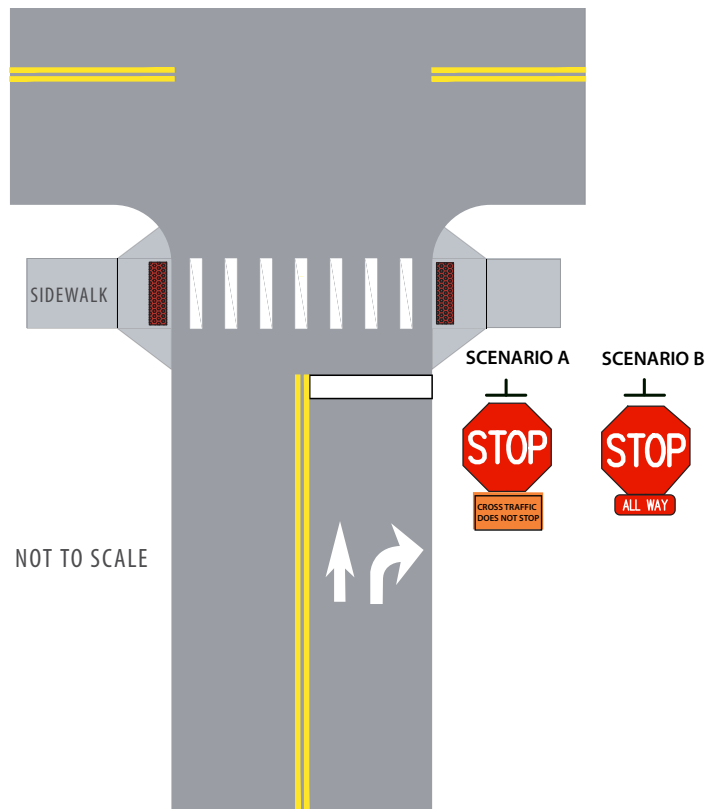
- Safe and practical access across the train tracks for people with disabilities.
 - A new tunnel with improved bicycle storage options at either end would provide commuters with convenient and streamlined access to the stairs to the train station.
 - Access to local business and amenities on both the north and south side of the train tracks, including but not limited to Kendall Park, the proposed 5th Avenue Development, the downtown shopping and dining district, Jewel and business at Mill and 5th, including DeEtta's, EndureIt Sports, the Alive Center, etc.
- **Alternative to Current Sub-Standard Options.** An open and well-lit tunnel separate from any vehicular traffic would be far superior to the current options to cross the train tracks, for reasons including, but not limited to the following:
 - Mill Street – A very narrow and enclosed sidewalk with concerns regarding safety, lighting, flooding and zero parkway between the street and sidewalk on the south end of the underpass.
 - Washington Street – Steep and narrow sidewalks and pedestrian congestion makes passage difficult for bicyclists, strollers and wheelchairs, and impossible if a pedestrian is walking down the sidewalk from the other direction.
 - Loomis Street – At-grade crossing is unsafe and freight trains can cause unforeseen delays.
 - Naper Blvd. – Impractical and unsafe.
 - **Overwhelming Support.** A tunnel connecting Kendall Park to the DCM lot is overwhelmingly supported by Pilgrim's Addition, Naperville Station, WHOA and the Naperville Bicycle Club. A tunnel at this location would provide safety, access and connectivity, and would eliminate the need for re-opening the "cow tunnel" at Webster Street. Connecting Kendall Park to the DCM lot would literally and figuratively bring the neighborhoods together, and would strengthen Naperville's status as a forward-thinking community that cares about its people and its commerce.

PEDESTRIAN SAFETY & CONNECTIVITY: KEY ROUTES & INTERSECTIONS



PEDESTRIAN SAFETY & CONNECTIVITY: CROSSING TREATMENTS

A Intersection Crossing: Stop Sign Control



APPLICATION

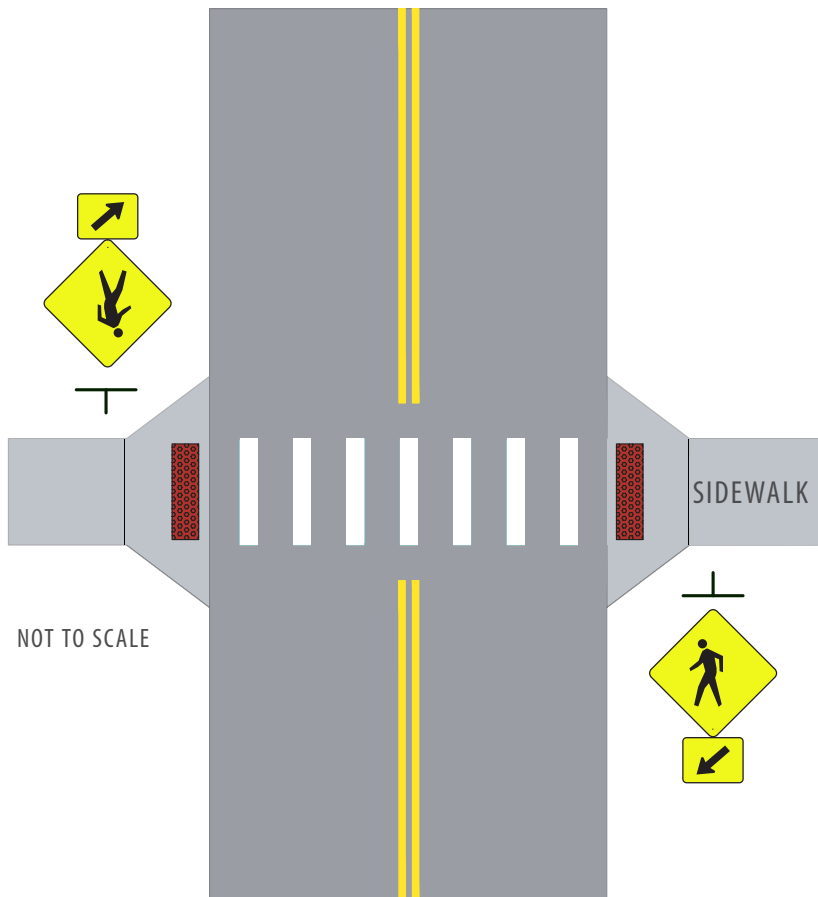
- Crash history
- Observed conflicts
- Limited visibility on one or more approaches

CONSIDERATIONS

- At two-way stop, stop sign should be placed on the lower-volume street
- Stop signs should not be used as speed control or traffic calming
- May be supplemented with "Stop Ahead" signage

PEDESTRIAN SAFETY & CONNECTIVITY: CROSSING TREATMENTS

B Midblock Crossing: Standard Treatment



APPLICATION

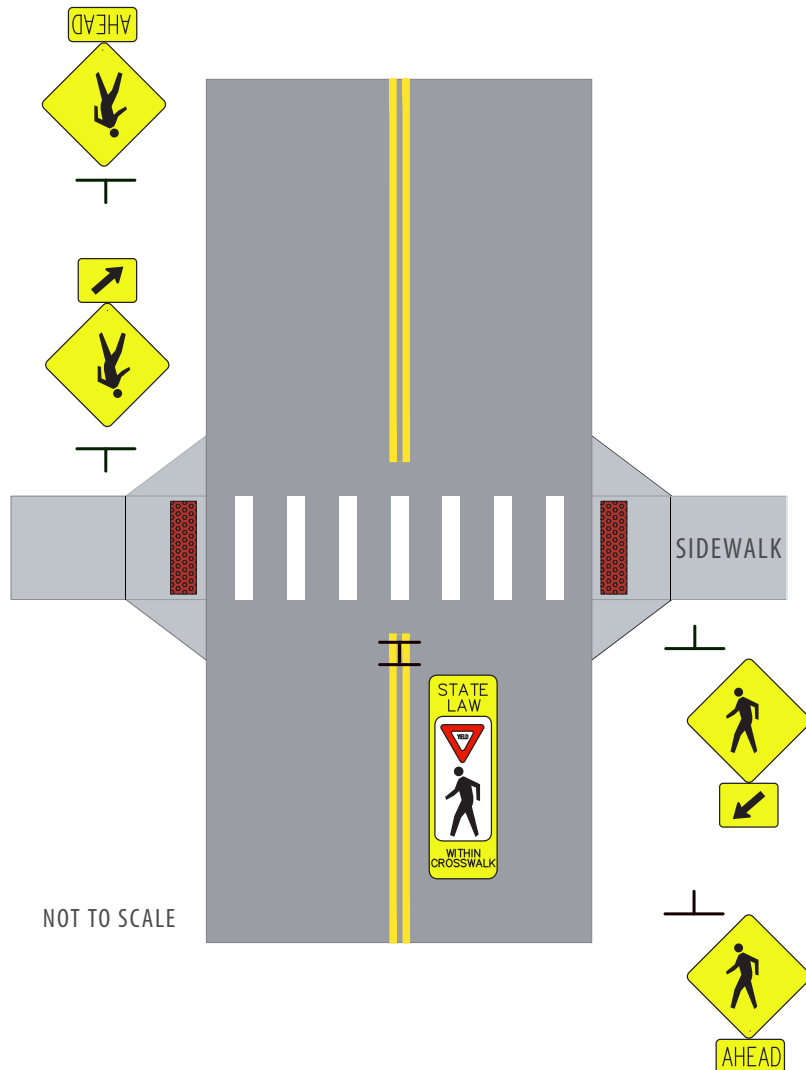
- Facilitate crossings where there is consistent pedestrian demand
- Create a direct route to key destinations
- Locate away from nearest side street or driveway so that drivers turning onto the primary street notice pedestrians

CONSIDERATIONS

- Difficult to use safely for pedestrians with visual impairments (unable to determine gap in traffic or stopped traffic) compared to a stop condition
- Multi-lane crossings should provide a median or refuge island
- Review pedestrian visibility (e.g., onstreet parking, lighting)
- Provide advance crosswalk warning signs for vehicle traffic

PEDESTRIAN SAFETY & CONNECTIVITY: CROSSING TREATMENTS

C Mid-Block Crossing: Increased Signage



APPLICATION

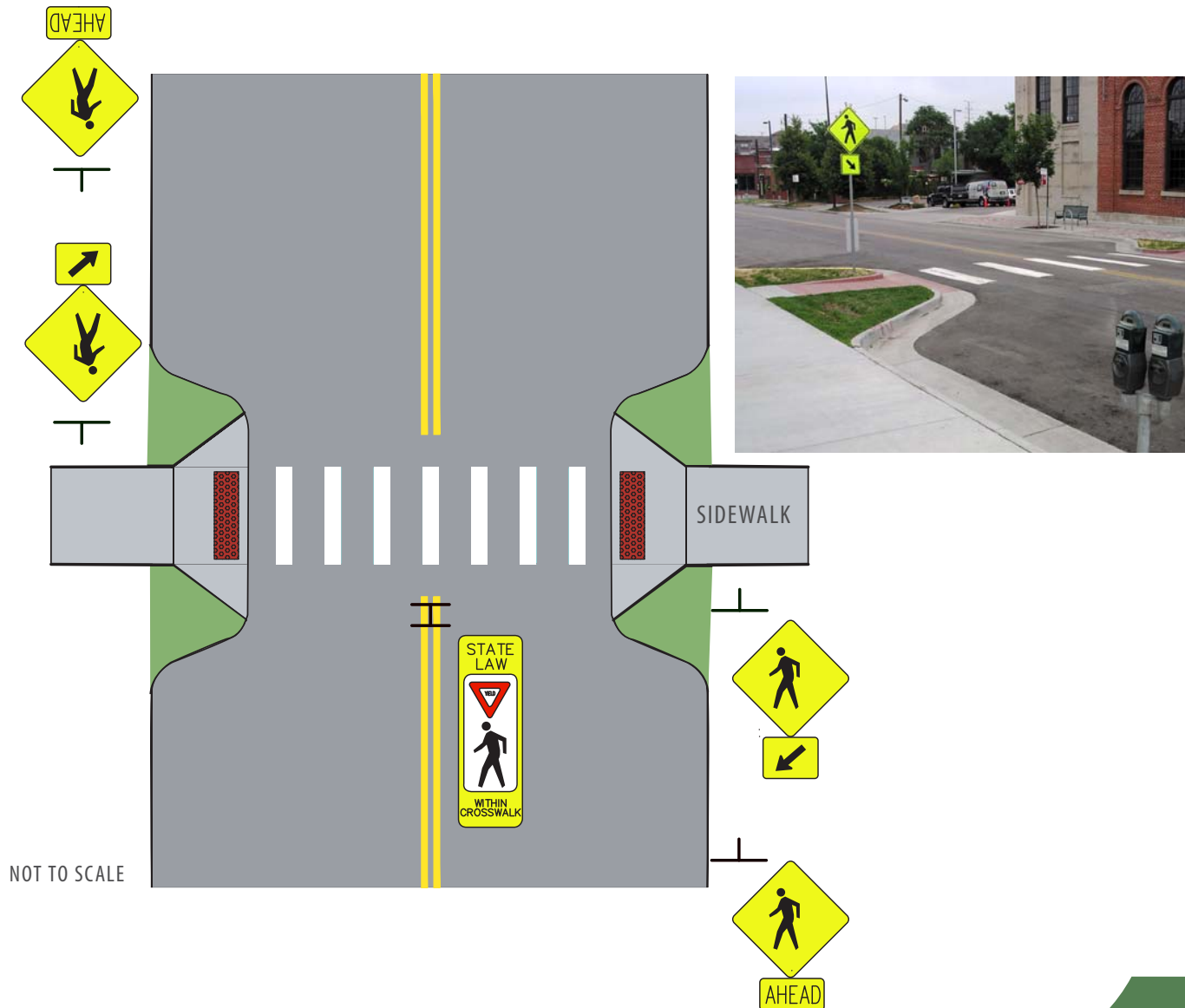
- Facilitate crossings where there is consistent pedestrian demand
- Create a direct route to key destinations
- Locate away from nearest side street or driveway so that drivers turning onto the primary street notice pedestrians
- Encourage motorist compliance

CONSIDERATIONS

- Difficult to use safely for pedestrians with visual impairments (unable to determine gap in traffic or stopped traffic) compared to a stop condition
- Multi-lane crossings should provide a median or refuge island
- Review pedestrian visibility (e.g., onstreet parking, lighting)

PEDESTRIAN SAFETY & CONNECTIVITY: CROSSING TREATMENTS

D Mid-Block Crossing: Curb Extensions



APPLICATION

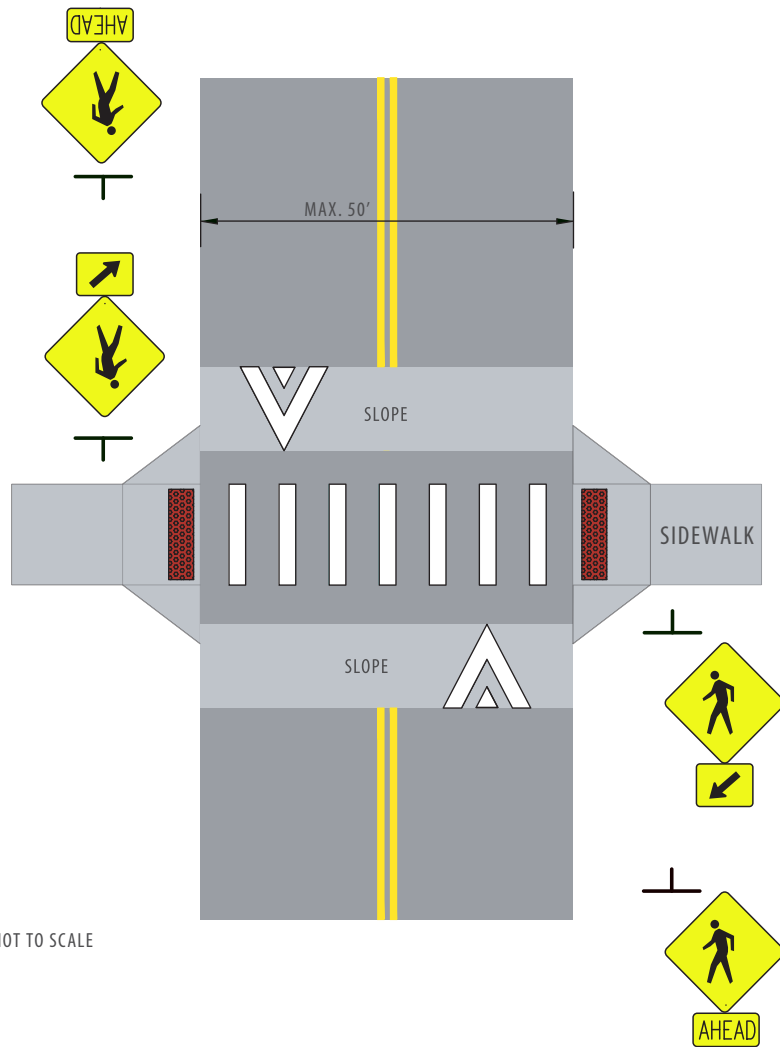
- Enhance visibility of pedestrians
- Reduce crossing distance
- Facilitate crossings where there is consistent pedestrian demand
- Create gateway to lower speed area
- Reduce speed of turning vehicles

CONSIDERATIONS

- Difficult to use safely for pedestrians with visual impairments (unable to determine gap in traffic or stopped traffic) compared to a stop condition
- Must be designed to accommodate drainage
- May require fire hydrant relocation

PEDESTRIAN SAFETY & CONNECTIVITY: CROSSING TREATMENTS

E Mid-Block Crossing: Speed Table



APPLICATION

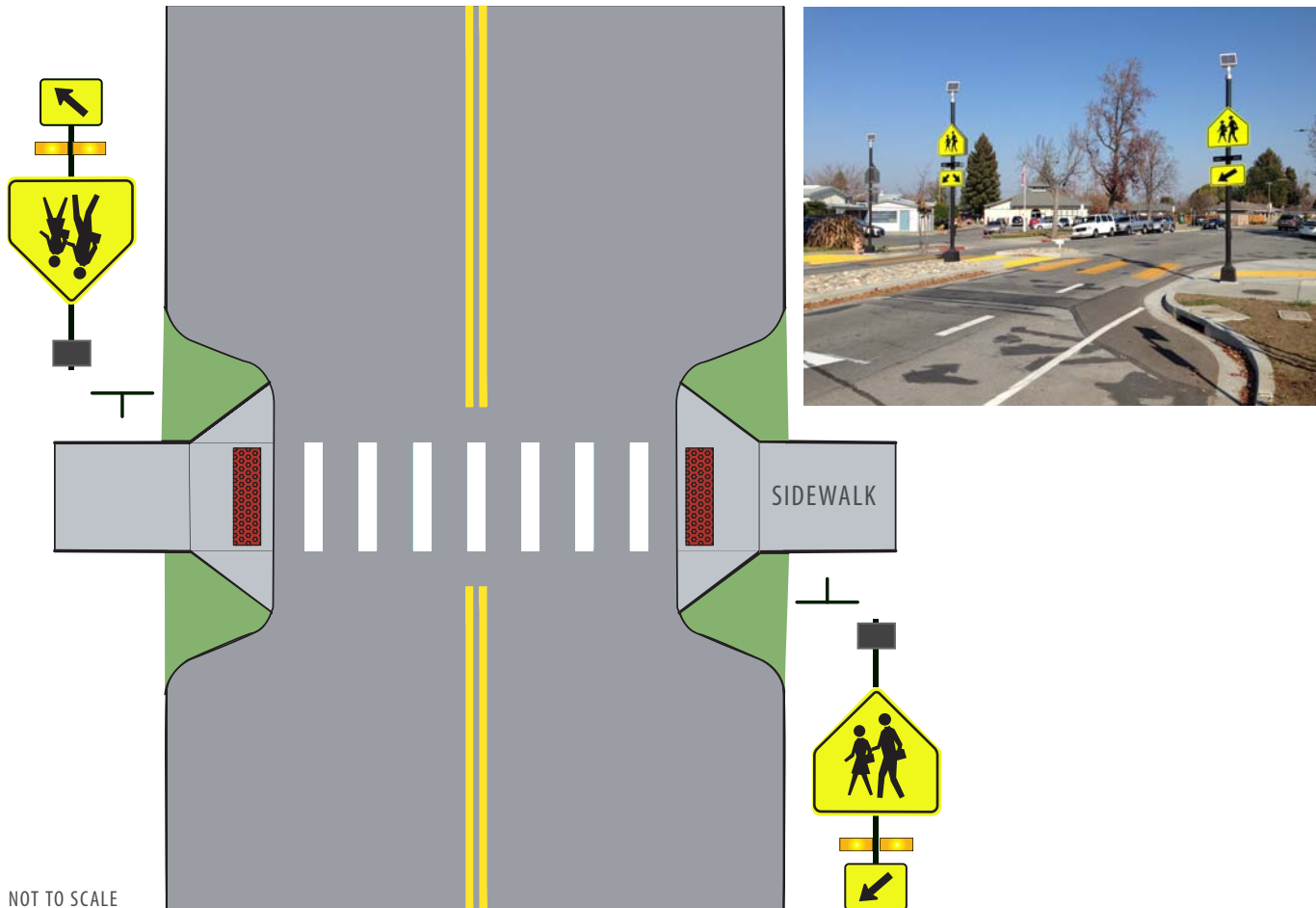
- Enhance visibility of pedestrians
- Traffic calming device
- Create gateway to lower speed area

CONSIDERATIONS

- Difficult to use safely for pedestrians with visual impairments (unable to determine gap in traffic or stopped traffic) compared to a stop condition
- Use of distinctive materials may require additional maintenance but highlight and define the speed table
- Typically preferred by emergency response over speed humps
- Existing City of Naperville policy prohibits speed tables and speed humps

PEDESTRIAN SAFETY & CONNECTIVITY: CROSSING TREATMENTS

F Mid-Block Crossing: Rectangular Rapid Flashing Beacon



APPLICATION

- Increase driver yielding rates to pedestrians
- Lower cost alternative to traffic signal

CONSIDERATIONS

- Requires FHWA permission for use
- Regular use of RRFBs could decrease effectiveness; should be used at key uncontrolled intersections only
- To minimize glare during nighttime conditions, an automatic signal dimming device should be used

PEDESTRIAN SAFETY & CONNECTIVITY: CROSSING TREATMENTS

G Mid-Block Crossing: In-Pavement Lighting

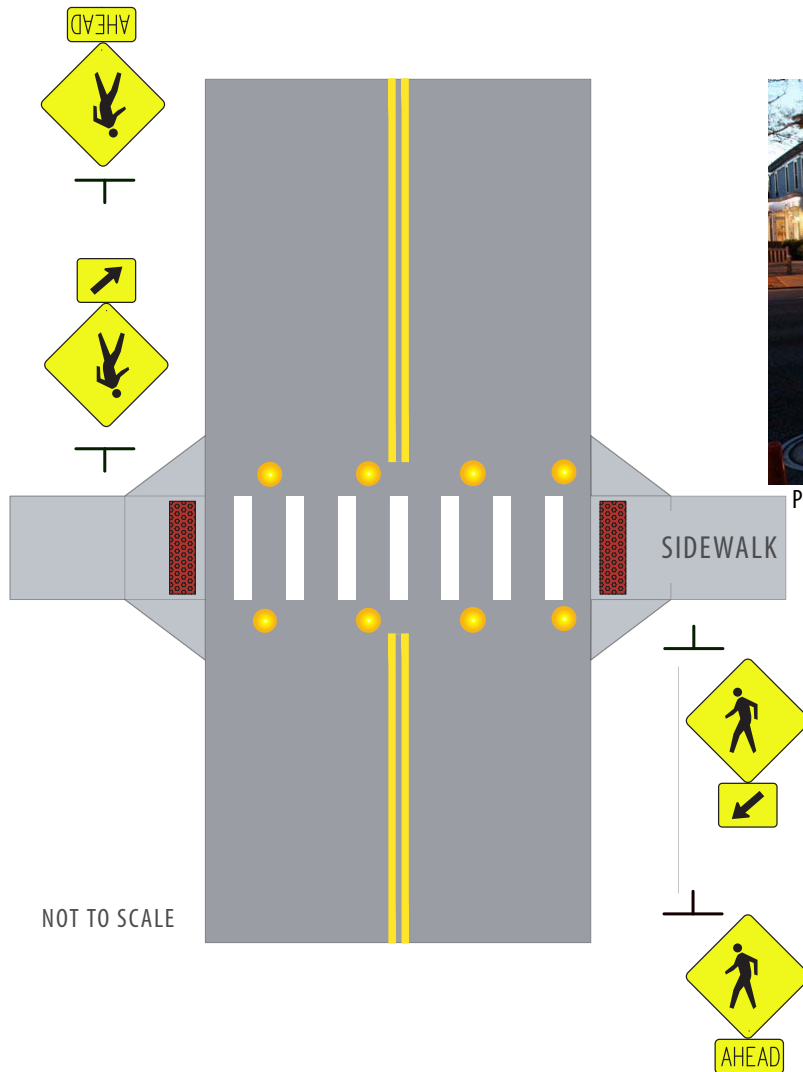


Photo Credit: Lightguard Systems

APPLICATION

- Encourage motorist compliance
- Enhance visibility of crosswalk

CONSIDERATIONS

- Difficult to use safely for pedestrians with visual impairments (unable to determine gap in traffic or stopped traffic) compared to a stop condition
- Actuated by pedestrian, lights may be misinterpreted as control device

PEDESTRIAN SAFETY & CONNECTIVITY: RAIL CROSSING TREATMENTS

A Railroad Crossing: Re-Open Cow Tunnel



Photo Credit: Naperville Cow Tunnel, Chicago Tribune

CONSIDERATIONS

- Potential for significant utility conflicts and unknown risks
- ADA access (e.g., elevator or ramp)
- Stormwater drainage
- Amtrak, BNSF, and Metra coordination required for shutdowns during construction
- Amtrak/BNSF/Metra service disruptions during construction (could require 48- to 72-hour shutdown)
- Security concerns associated with a tunnel (e.g., limited visibility)
- High-level review suggests the structural integrity of the cow tunnel may require repairs
- Cost to modernize and repurpose to current code could exceed cost of a new underpass
- Available right-of-way limitations

PEDESTRIAN SAFETY & CONNECTIVITY: RAIL CROSSING TREATMENTS

B Railroad Crossing: Construct New Underpass



Photo: Deerfield Road Pedestrian Underpass, Deerfield, IL

CONSIDERATIONS

- Security concerns associated with a tunnel (e.g., limited visibility)
- ADA access (e.g., elevator or ramp)
- Stormwater drainage
- Amtrak, BNSF, and Metra coordination required for shutdowns during construction
- Amtrak/BNSF/Metra service disruptions during construction (could require 48- to 72-hour shutdown)

COST ESTIMATE: \$3-5 million

- Structure is not temperature controlled except at elevators (if provided in lieu of ramps)
- Considers precast box culverts
- Assumes 10 foot clear dimension inside of the tunnel.
- Excludes site civil and utilities

PEDESTRIAN SAFETY & CONNECTIVITY: RAIL CROSSING TREATMENTS

C Railroad Crossing: Construct New Pedestrian Overpass / Skyway



Photos: Anoka CRTV Pedestrian Bridge, Anoka, MN

CONSIDERATIONS

- Create sense of security and desired level of service
- Opportunity to integrate with development or parking deck
- Site impacts and coordination with BNSF, Metra, and Amtrak for closures during construction
- ADA access (e.g., elevator or ramp)
- Aesthetics and height
- Maintain conductor line of sight to signal stations

COST ESTIMATE: \$2.5-4 million

- Structure is not temperature controlled except at elevators
- Assumes a pre-engineered steel truss; minimal architectural features
 - 70-foot span and 12-foot wide truss
- Includes hydraulic elevator at each headhouse
- Reflects headhouse elevation to allowed for the required clear height between top of rail and bottom of bridge structure
- Excludes site civil and utilities

RAIL CROSSINGS: CASE STUDIES



Photo Credit: Rendering of pedestrian tunnel at Lombard Metra Station, Village of Lombard

LOMBARD METRA STATION - UNDERPASS (COMPLETED)

- Construction initiated in Spring 2014, completed in Summer 2015
- Included new ADA ramps and stairs to the platform and tunnel and construction of roof canopies over the platform
- Removed at-grade crossing
- Construction cost (estimate): \$8.1 million + \$1.6 million platform rehabilitation
- Coordination with Metra and Union Pacific Railroad



Photo: Aerial view of pedestrian underpass adjacent to the Wheaton College stadium (former Chase Street right-of-way)

WHEATON COLLEGE - UNDERPASS (COMPLETED)

- Included new ADA ramps and stairs to the tunnel
- Removed existing Chase Street at-grade crossing
- Cost estimate roughly \$3 million
- Coordination with Metra and Union Pacific Railroad

RAIL CROSSINGS: CASE STUDIES



Photo Credit: Rendering of pedestrian overpass at Glen Ellyn Metra Station, Village of Glen Ellyn

GLEN ELLYN METRA STATION - OVERPASS (CONCEPT)

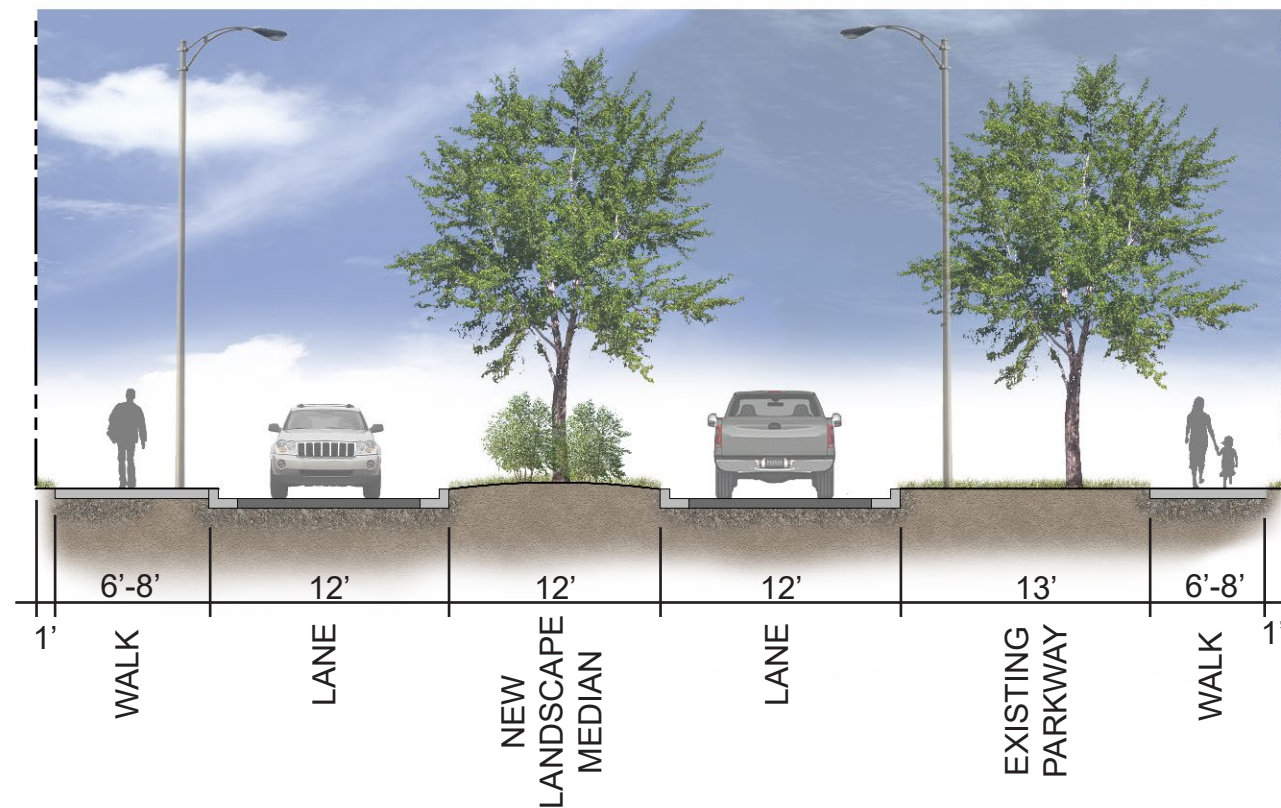
- Village completed feasibility study to evaluate overpass and underpass alternatives
- ADA access to be provided by elevator or ramp
- Preliminary construction cost estimate roughly \$3 million
- Coordination with Metra and Union Pacific Railroad



Photo Credit: Rendering of pedestrian overpass concept at Mundelein Metra Station, Village of Mundelein

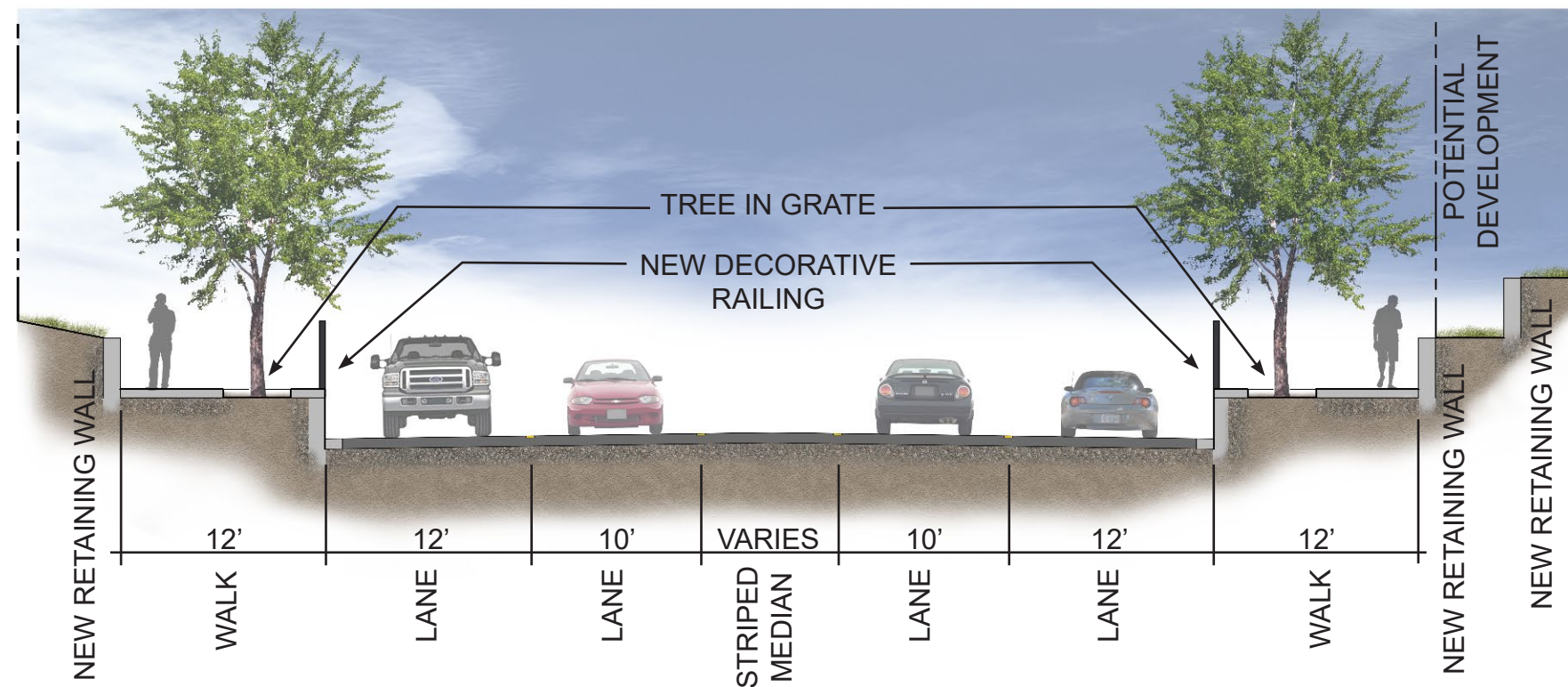
MUNDELEIN METRA STATION - OVERPASS (CONCEPT)

- 24-feet tall with a tower on each side of the tracks
- Includes stairs, ramps, elevators, and canopies covering walkways
- Preliminary construction cost estimate roughly \$5 million
- Construction anticipated early 2019
- Coordination with Metra and Canadian National



NOTE: 66' RIGHT-OF-WAY.
ASSUMES EXISTING OUTER CURBS TO REMAIN.

POTENTIAL 5TH AVENUE MEDIAN IMPROVEMENTS (VIEW WEST)



NOTE: DIMENSIONS BASED ON WASHINGTON
STREETSCAPE INCLUDED IN 5TH AVENUE STUDY
ADOPTED BY NAPERVILLE CITY COUNCIL ON
DECEMBER 1, 2009.
SIDEWALK WIDTHS MAY VARY (MINIMUM 6' CLEAR).

POTENTIAL WASHINGTON STREET SIDEWALK IMPROVEMENTS (VIEW NORTH)

	<u>Pedestrian Improvement</u>	<u>Design Elements</u>	<u>Construction Cost (Planning-Level Estimate)¹</u>	<u>Notes</u>
	UNSIGNALIZED INTERSECTION CROSSING			
A	Stop Sign Control	Stop Sign	\$1,000	assumes installation of one sign in each direction of travel
		Crosswalk / Stop Bar	\$1,500	assumes continental/ladder crosswalk across two-lane cross-section and standard stop bar on on two intersection approaches
		ADA Curb Ramps	<u>\$10,000</u>	assumes two ADA curb ramps and truncated domes/detectable warning material includes demolition and restoration
			\$12,500	
	MID-BLOCK CROSSING			
B	Standard Treatment	Pedestrian Crossing Sign	\$1,000	assumes installation of one sign in each direction of travel
		Advance Pedestrian Crossing Warning Sign	\$1,000	assumes installation of one advance warning sign in each direction of travel
		Crosswalk	\$1,500	assumes continental/ladder crosswalk across two-lane cross-section
		ADA Curb Ramps	<u>\$10,000</u>	assumes two ADA curb ramps and truncated domes/detectable warning material includes demolition and restoration
			\$13,500	
C	Increased Signage	In-Pavement Sign	\$500	assumes bi-directional sign
		Advance Pedestrian Crossing Warning Sign	\$1,000	assumes installation of one advance warning sign in each direction of travel
		Crosswalk	\$1,500	assumes continental/ladder crosswalk across two-lane cross-section
		ADA Curb Ramps	<u>\$10,000</u>	assumes two ADA curb ramps and truncated domes/detectable warning material includes demolition and restoration
			\$13,000	

	<u>Pedestrian Improvement</u>	<u>Design Elements</u>	<u>Construction Cost (Planning-Level Estimate)¹</u>	<u>Notes</u>
D	Curb Extensions	Pedestrian Crossing Sign	\$1,000	assumes installation of one sign in each direction of travel
		Advance Pedestrian Crossing Warning Sign	\$1,000	assumes installation of one advance warning sign in each direction of travel
		Crosswalk	\$1,500	assumes continental/ladder crosswalk across two-lane cross-section
		ADA Curb Ramps	\$10,000	assumes two ADA curb ramps and truncated domes/detectable warning material includes demolition and restoration
		Curb Extensions	<u>\$10,000-\$15,000</u>	includes curb extension on each side of the roadway excludes utility or fire hydrant relocation excludes drainage modifications
			\$23,500-\$28,500	
E	Speed Table	Pedestrian Crossing Sign	\$1,000	assumes installation of one sign in each direction of travel
		Advance Pedestrian Crossing Warning Sign	\$1,000	assumes installation of one advance warning sign in each direction of travel
		Crosswalk	\$1,500	assumes continental/ladder crosswalk across two-lane cross-section
		ADA Curb Ramps	\$10,000	assumes two ADA curb ramps and truncated domes/detectable warning material includes demolition and restoration
		Speed Table	<u>\$40,000</u>	excludes drainage modifications assumes concrete speed table
			\$53,500	
F	Rectangular Rapid Flashing Beacon (RRFB)	RRFB Signage	\$15,000-\$20,000	includes RRFB in each direction of travel
		Advance Pedestrian Crossing Warning Sign	\$1,000	assumes installation of one advance warning sign in each direction of travel
		Crosswalk	\$1,500	assumes continental/ladder crosswalk across two-lane cross-section
		ADA Curb Ramps	\$3,000	assumes two ADA curb ramps and truncated domes/detectable warning material includes demolition and restoration
		Curb Extensions	<u>\$10,000-\$15,000</u>	excludes drainage modifications
			\$30,500-\$40,500	

	<u>Pedestrian Improvement</u>	<u>Design Elements</u>	<u>Construction Cost (Planning-Level Estimate)¹</u>	<u>Notes</u>
G	In-Pavement Lighting	In-Pavement Lighting	\$30,000-\$40,000	assumes two-lane cross-section installation required on both sides of crosswalk for entire length of crosswalk includes pedestrian pushbutton activation
		Advance Pedestrian Crossing Warning Sign	\$1,000	assumes installation of one advance warning sign in each direction
		Crosswalk	\$1,500	assumes continental/ladder crosswalk across two-lane cross-section
		ADA Curb Ramps	<u>\$10,000</u>	assumes two ADA curb ramps and truncated domes/detectable warning material includes demolition and restoration
			\$42,500-\$52,500	
BNSF RAIL CROSSING / UNDERPASS				
H	Loomis Street At-Grade Crossing	Pedestrian Gate	\$200,000-\$250,000 (total)	assumes new rail crossing signal equipment
		Sidewalk Extension Across BNSF Tracks / Right-of-Way		excludes drainage; excludes railroad logistics (e.g., flagger, closure)
		ADA Curb Ramps		assumes ADA curb ramp connection to future sidewalk along east side of Loomis Street north of BNSF tracks and truncated domes/detectable warning material includes demolition and restoration
I	Ellsworth Street Underpass	General Safety and Aesthetic Enhancements	\$2.25-\$3.75 million	assumes resurfacing of the walls and ceiling assumes blindside waterproofing from inside the tunnel for the walls and ceiling to mitigate water leakage issues (note: this waterproofing system is not effective in stopping water leakage; alternative waterproofing systems would require closure of the tracks for up to 72 hours for installation) assumes new lighting in the tunnel assumes new barriers on the walls leading to the tunnel on the north side of the tracks excludes mechanical ventilation of the tunnel assumes construction would not disrupt train traffic

	<u>Pedestrian Improvement</u>	<u>Design Elements</u>	<u>Construction Cost (Planning-Level Estimate)¹</u>	<u>Notes</u>
J	Washington Street Underpass	Reconstruct Bridge for Enhanced Washington Street Streetscape / Sidewalk ²	\$5.5-\$7.0million	reflects bridge replacement in the same location assumes bridge would be approximately 90' long x 85' wide (extended length to accomodate wider pedestrian path) bridge width is assumed to remain the same as existing condition excludes shoofly for temporary train service excludes raising profile of train tracks or lowering Washington Street (existing bridge is posted for 14'-5" of vertical clearance) excludes utility relocations
J2	Washington Street Underpass	Enhance Washington Street Bridge Finishes/Aesthetics Only	\$250,000-\$500,000	Decorative Metal Panels along concrete walls and over road way inclusive of dimensional lettering and panel lighting. LED lighting under viaduct.
K	Re-Open Cow Tunnel		\$3.0-\$5.0 million	structural integrity of the cow tunnel would likely require repairs cost to modernize and repurpose to code could exceed cost of a new underpass.
L	New Underpass	Precast Box Culvert	\$3.0-\$5.0 million	assumes structure is not temperature controlled except at elevators (if provided in lieu of ramps) 10-foot clear dimension inside the tunnel excludes site civil and utilities
M	Pedestrian Overpass / Skyway	Pre-Engineered Steel Truss Hydraulic Elevator at each Headhouse	\$2.5-\$4.0 million	reflects 70-foot span and 12-foot wide truss assumes structure is not temperature controlled except at elevators (if provided in lieu of ramps) headhouse elevation to allow for the required clear height between top of rail and bottom of bridge structure excludes site civil and utilities reflects minimal architectural features
5th Avenue Improvements - Washington to Sleight				

	<u>Pedestrian Improvement</u>	<u>Design Elements</u>	<u>Construction Cost (Planning-Level Estimate)¹</u>	<u>Notes</u>
	Median Improvements	New between block medians with landscaping from Washington to Sleight.	\$617,500	Reflects \$325/LF Cost - Saw Cutting, Asphalt removal, new median/curb, mill/resurface roadway, restriping and landscape
	Pedestrian Lights	City of Naperville Standard Street Lighting	\$596,600	Reflects 314/LF
			\$1,214,100	
Washington Avenue Improvements - 5th to North				
	Sidewalk Improvements	New sidewalk, retaining wall detail with landscape from 5th Ave. to North Avenue on the East and West sides of Washington. Widening under bridge not included.	\$1,789,200	Reflects \$2,100/LF Cost - Saw Cutting, Concrete removal, new concrete sidewalks, hardscape retaining walls, landscaping and decorative railings.
	Pedestrian Lights	City of Naperville Standard Street Lighting	\$267,528	Reflects 314/LF
			\$2,056,728	
¹ Assumes the pedestrian crossing improvement is included with a comprehensive project in lieu of individual small-scale improvement projects.				
² For purposes of this planning-level cost estimate, assumed dimensions of Washington Street streetscape included in the 5th Avenue Study, adopted by Naperville City Council on December 1, 2009.				

