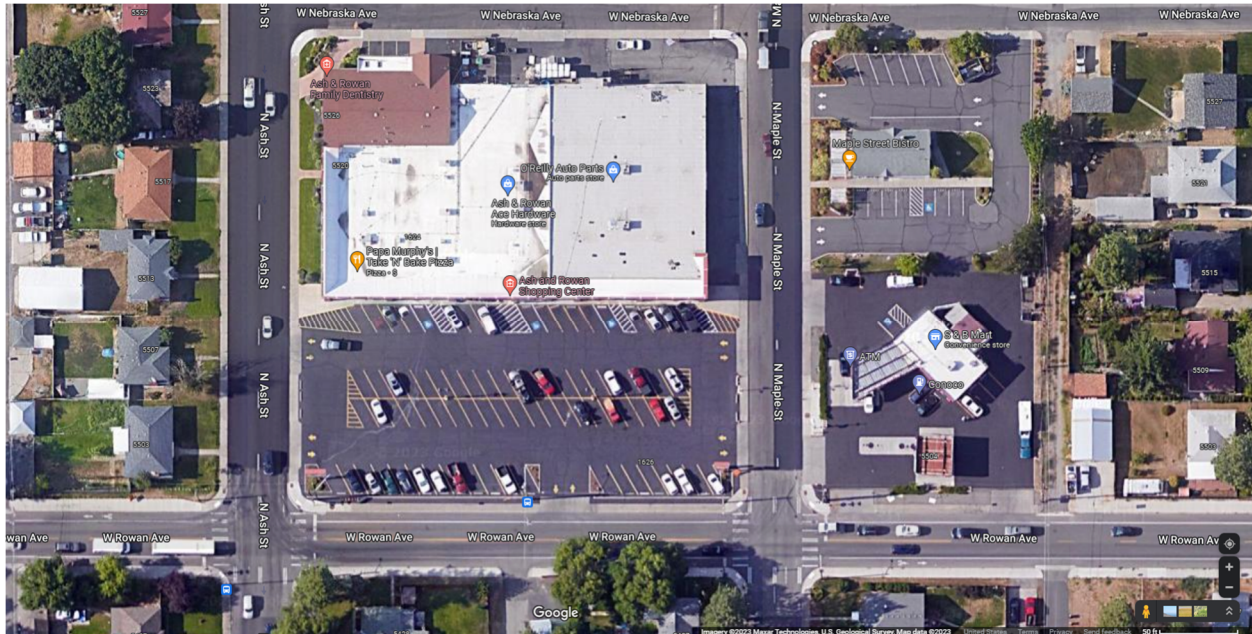


Spokane Traffic Calming Master Plan

District: 3
Neighborhood: North Hill
Project Extent: Ash Street and Rowan Avenue
Estimate: \$2,330,000

Problem Statement: Residents of the North Hill neighborhood raised concerns over pedestrian crossing safety on Ash Street north of Rowan Avenue and Rowan Avenue between Ash and Maple Street.



Rowan Avenue between Ash Street and Maple Street

Traffic Analysis

Ash Street within the study area is classified as an urban principal arterial with a posted speed limit of 30 miles per hour and provides two southbound lanes. Rowan Avenue within the study area is classified as an urban minor arterial with a posted speed limit of 30 miles per hour and provides one lane in each direction. Ash Street does not provide marked shoulders or bike lanes; however, Rowan Avenue has a striped bike lane in both directions.

Rowan Avenue is stop signed controlled at the Ash Street and Maple Street approaches. The Rowan Avenue intersections at Ash Street and Maple Street (one block east) provide marked pedestrian crossings on each leg. There is a marked crossing on Ash Street at Nebraska Avenue (one block north).

The following table shows the 2022 daily traffic volumes and 85th percentile speeds on Rowan Avenue between Ash Street and Maple Street. As shown in the table, the highest daily volume on Rowan Avenue was 1,476 vehicles. The highest 85th percentile speed was 24 miles per hour (6 miles per hour lower than the posted speed limit).

Spokane Traffic Calming Master Plan

2022 Daily Traffic and 85th Percentile Speeds on Rowan Avenue

Direction	# Lanes	2022 Daily Traffic (Vehicles per day)	85 th Percentile Speed (mph)	Posted Speed (mph)
Rowan Avenue between Ash Street and Maple Street ^a				
EB	1	1,476	24	
WB	1	1,225	23	
Both Dir.	2	2701	24	30

^a Traffic data collected in November 2022.

Data shows that on average drivers are travelling below the posted speed limit. Since speeding is not the issue for pedestrian crossing safety, more efforts should be focused on providing visibility of pedestrians and pedestrian infrastructure to drivers. Crossing treatment analysis was performed for Rowan Avenue using NCHRP 562 which indicated that a marked crosswalk is recommended.

Ash Street was not evaluated for a new pedestrian crossing treatment. There are existing pedestrian marked crossings at all legs of the Rowan Avenue/Ash Street intersection and at Nebraska Avenue, approximately 315 feet apart. The existing crossing facilities are sufficient to meet the estimated crossing demand on Ash Street. The marked crossing on Ash Street at Nebraska Avenue is in good condition with clear pavement markings and signage.

Recommended Solution:

It is recommended to enhance the existing crossings of Ash Street and Maple Street at Rowan Avenue with signalized pedestrian crossings provided by a pedestrian hybrid beacon or a full traffic signal. A new traffic signal would provide additional benefits from a reduction in angle crashes and controlled intersection operations for all modes.

The addition of curb extension at the Ash Street and Maple Street crossings at Rowan Avenue were considered, however this improvement should be coordinated with the city as they would conflict with future plans to add bike lanes.



LEGEND

----- PROPERTY LINE

CONSTRUCTION NOTES

1 INSTALL NEW TRAFFIC SIGNAL BASE, MAST ARM, SIGNAL HEAD(S), AND LUMINAIRE



**PRELIMINARY
NOT FOR CONSTRUCTION**

1
1 of 6

NAVD88 = (OLD CBM ELEV.) - (1.3.13) AS OF JANUARY, 2000 USE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)									
BENCHMARK LOCATION: None Given									
CURRENT C.O.S. DESIGN STANDARDS ADOPTED FEB. 2007									
CITY OF SPOKANE, WASHINGTON DEPARTMENT OF ENGINEERING SERVICES 808 WEST SPOKANE FALLS BLVD. SPOKANE, WASHINGTON 99201-3343 (509) 625-6300									
PROJECT NAME: SPOKANE TRAFFIC CALMING MASTER PLAN									
SEGMENT LIMITS: ROWAN AVENUE ASH STREET TO MAPLE STREET									
PROJECT LIMITS: NORTH HILL NEIGHBORHOOD									
TYPE OF IMPROVEMENT: TRAFFIC									
CITY PROJECT NUMBER: _____ CITY PLAN NUMBER: _____									
EPN: TRAFFIC DESIGN									

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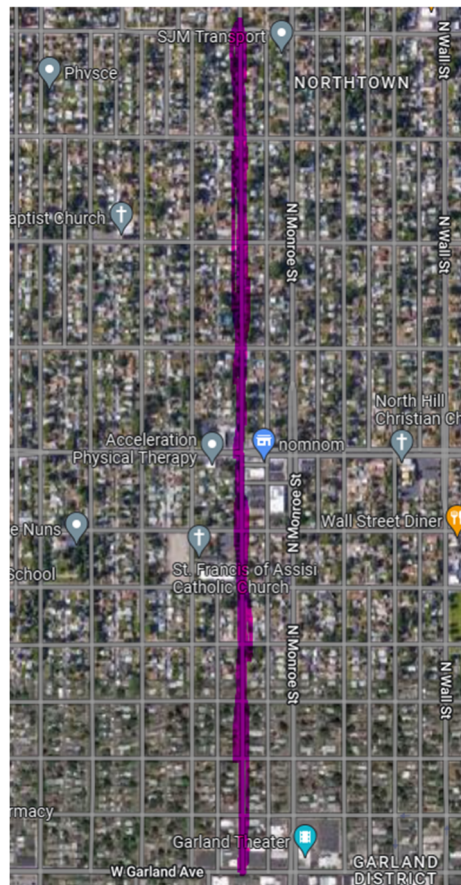
Spokane Traffic Calming Master Plan

District:	3
Neighborhood:	North Hill
Project Extent:	Madison Street from Rowan Avenue to Garland Avenue Estimate: \$154,000

Problem Statement: Residents of the North Hill neighborhood raised concerns over cut through traffic on Madison Street from Rowan Avenue to Garland Avenue (1 mile corridor) to avoid congestion on Monroe Street (one block east).

Traffic Analysis

Madison Street within the study area is classified as a local street and does not have a posted speed limit. The statutory speed limit of 25 miles per hour is applied to all local streets. The roadway provides one lane in each direction. Rowan Avenue is classified as urban minor arterial with a posted speed limit of 30 miles per hour and provides one lane in each direction. Garland Avenue is classified as a minor arterial with a posted speed limit of 20 miles per hour. The roadway provides one lane each direction with on-street parking on the south side of the street. The entire study corridor lacks intersection control except at Rowan Avenue, Wellesley Avenue, and Garland Avenue, which are controlled by stop signs on the Madison Street approaches. The entire study corridor lacks pedestrian crosswalks. There is only one curb extension at Everett Avenue.



Madison Street from Rowan Avenue to Garland Avenue

Spokane Traffic Calming Master Plan

The table below shows the estimated 2022 daily traffic volumes on Madison Street from Rowan Avenue to Garland Avenue, south of Queen Avenue. The daily volume on Madison Street was 311 vehicles. Speed data was not available. The traffic data shows an appropriate level of traffic on a local street and suggests there is not a cut-through issue on this corridor.

2022 Estimated Daily Traffic Madison Street

Direction	# Lanes	2022 Estimated Daily Traffic (Vehicles per day)	85 th Percentile Speed (mph)	Posted Speed (mph)
Madison Street South of Queen Avenue ^a				
NB	1	174		
SB	1	137	N/A	N/A
Both Dir.	2	311		

^a Traffic data collected in July 2018. Volumes were grown at a 1.0% annual growth rate, to estimate 2022 traffic conditions.

Available crash data was evaluated for Madison Street from Rowan Avenue to Garland Avenue to determine if there is a trend in crash type or location. There was a fatal collision at the Madison Street/Lacrosse Avenue intersection in 2021. The majority of crashes occurred midblock due to a vehicle hitting a parked car. No safety concerns were found at a specific local street intersection on Madison Street that would benefit from traffic calming improvements.

Crashes on Madison Street between Rowan Avenue and Garland Avenue (2017 to 2021)

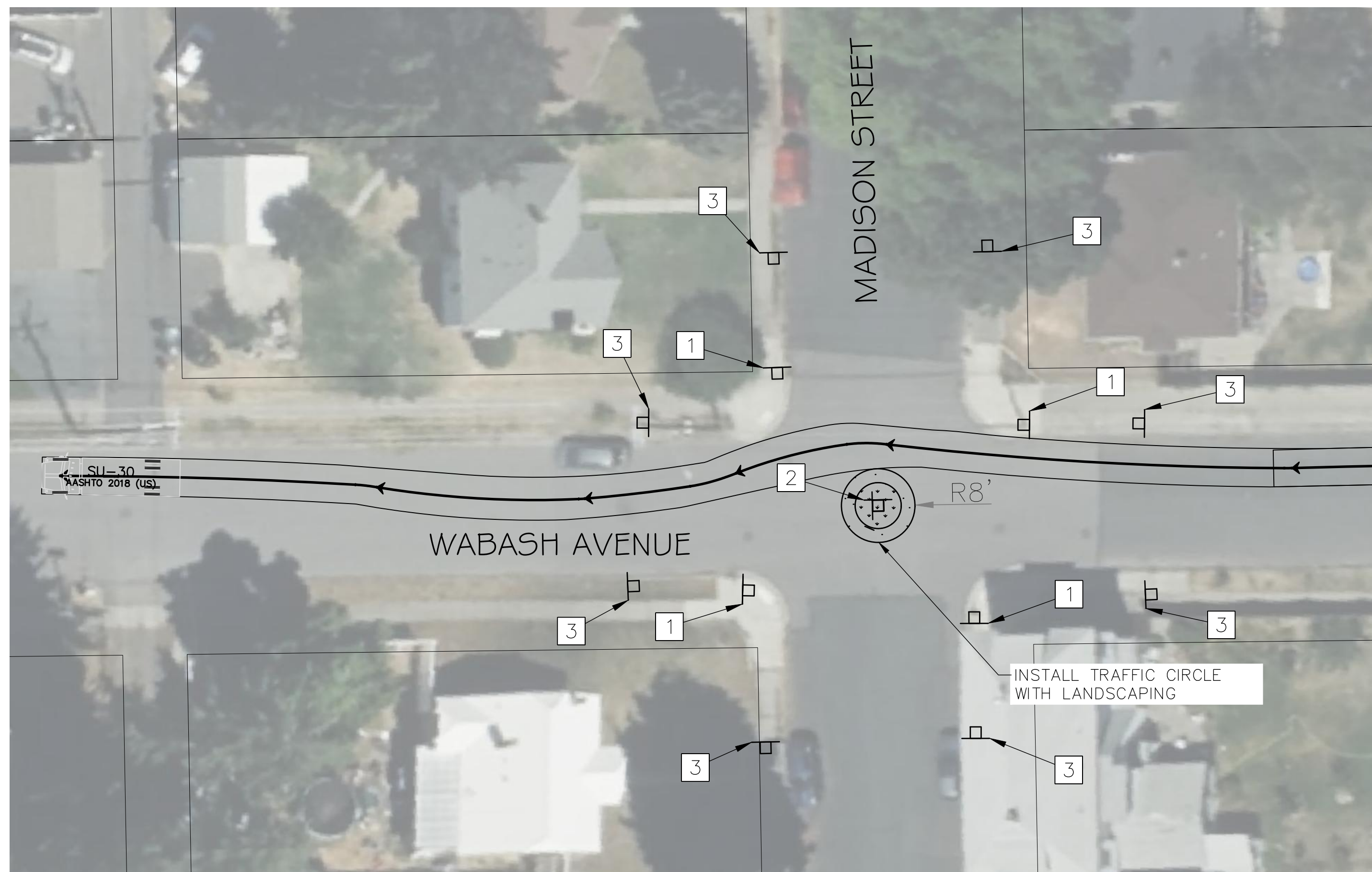
Crash Type	Crash Severity					Total
	Fatal	Major Injury	Minor Injury	Possible Injury	Property Damage Only	
Rear End					1	1
Angle	1			2	5	8
Turning						
Sideswipe						
Stationary Object or Car				2	8	10
Total	1	0	0	4	14	19

Recommended Solution:

It was determined the corridor would benefit from an overall traffic calming treatment to lower speeds and increase travel times to deter drivers from diverting their route from Monroe Street to Madison Street. The addition of traffic circles is recommended at the following locations, selected at the neighborhood entrances (first local street intersection after an arterial intersection).

- W Everett Avenue
- W Wabash Avenue
- W Princeton Avenue
- W Walton Avenue

An alternative to traffic circles is installing curb extensions on each corner at an intersection to reduce vehicle lane widths and pedestrian crossing lengths. This improvement was installed at the Madison Street/Everett Avenue intersection. This improvement alternative is more expensive than traffic circles.

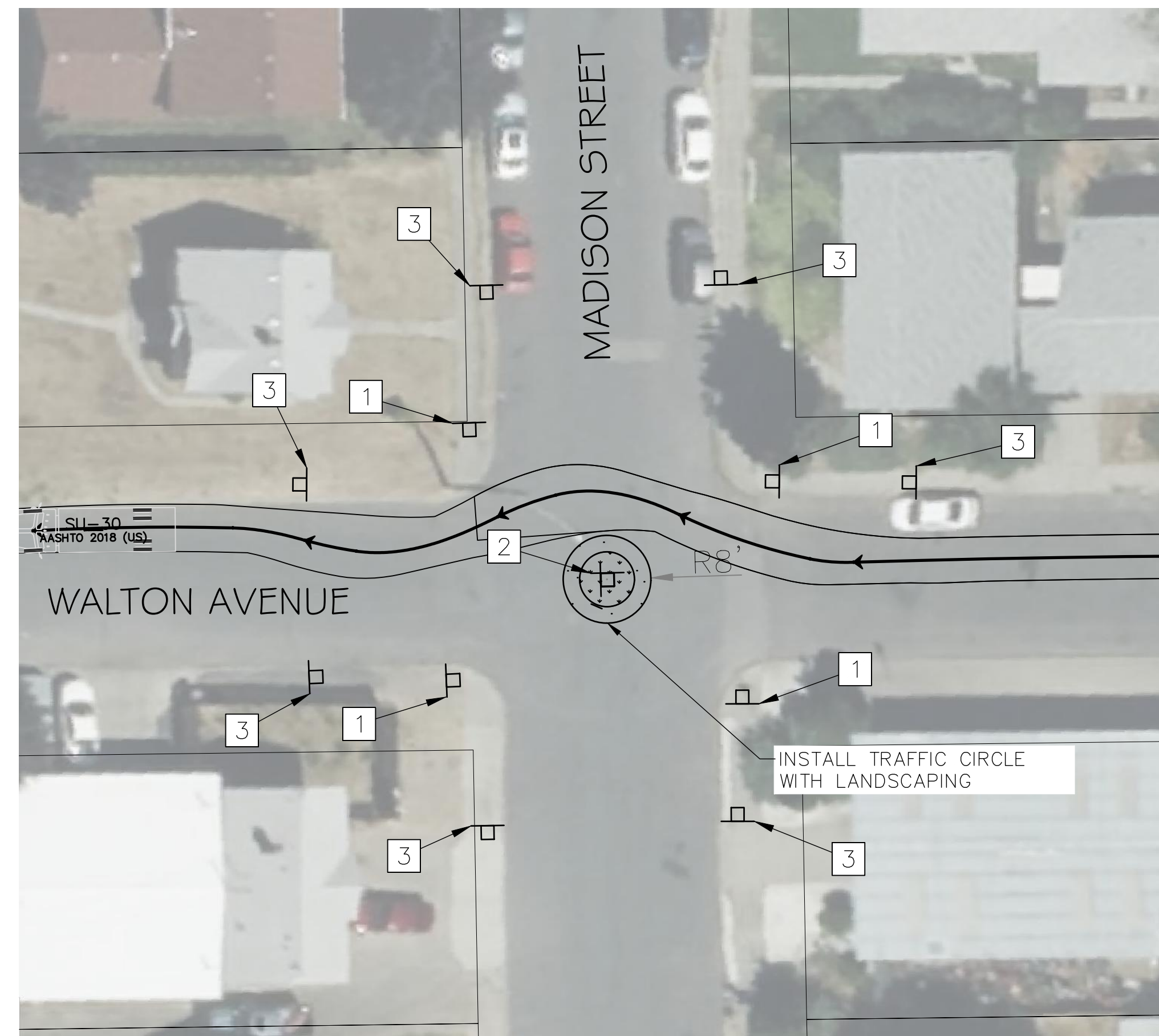
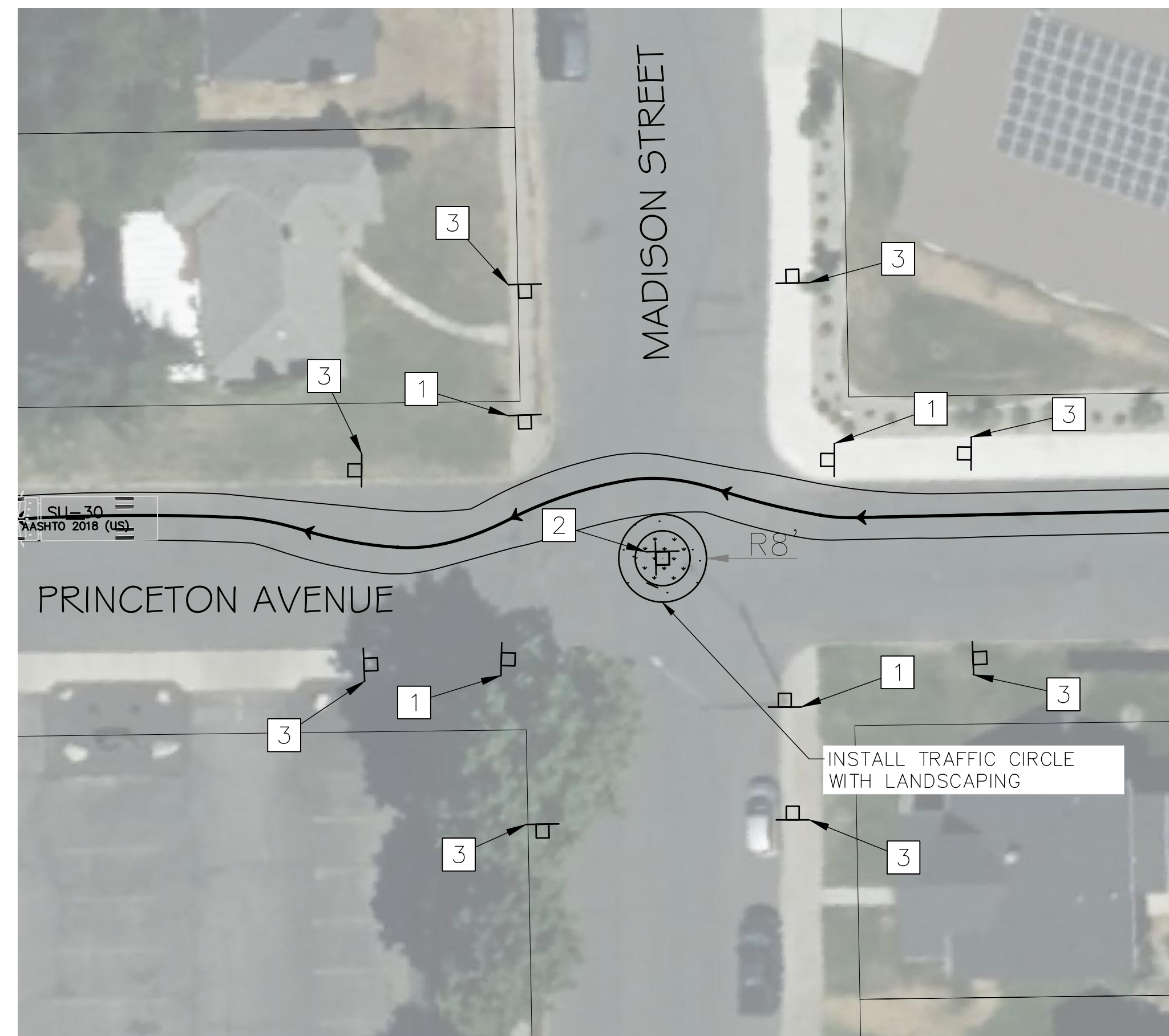
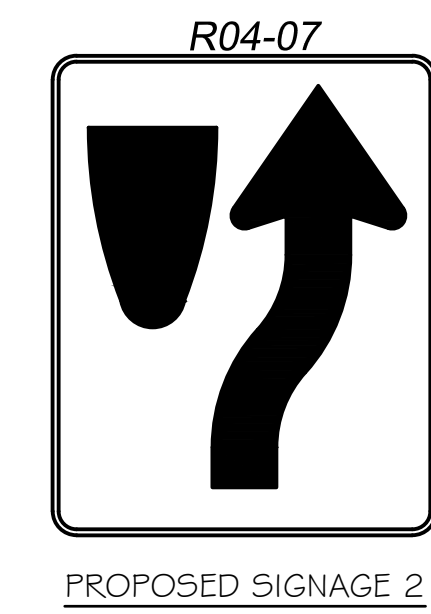


LEGEND

- PROPERTY LINE
- PROPOSED SIGN

CONSTRUCTION NOTES

- 1 INSTALL PROPOSED SIGNAGE 1.
- 2 INSTALL FOUR EACH PROPOSED SIGNAGE 2 MOUNTED ON SAME POST. SIGNAGE SHOULD POINT IN EACH DIRECTION TO NOTIFY ONCOMING TRAFFIC.
- 2 INSTALL PROPOSED SIGNAGE 3.



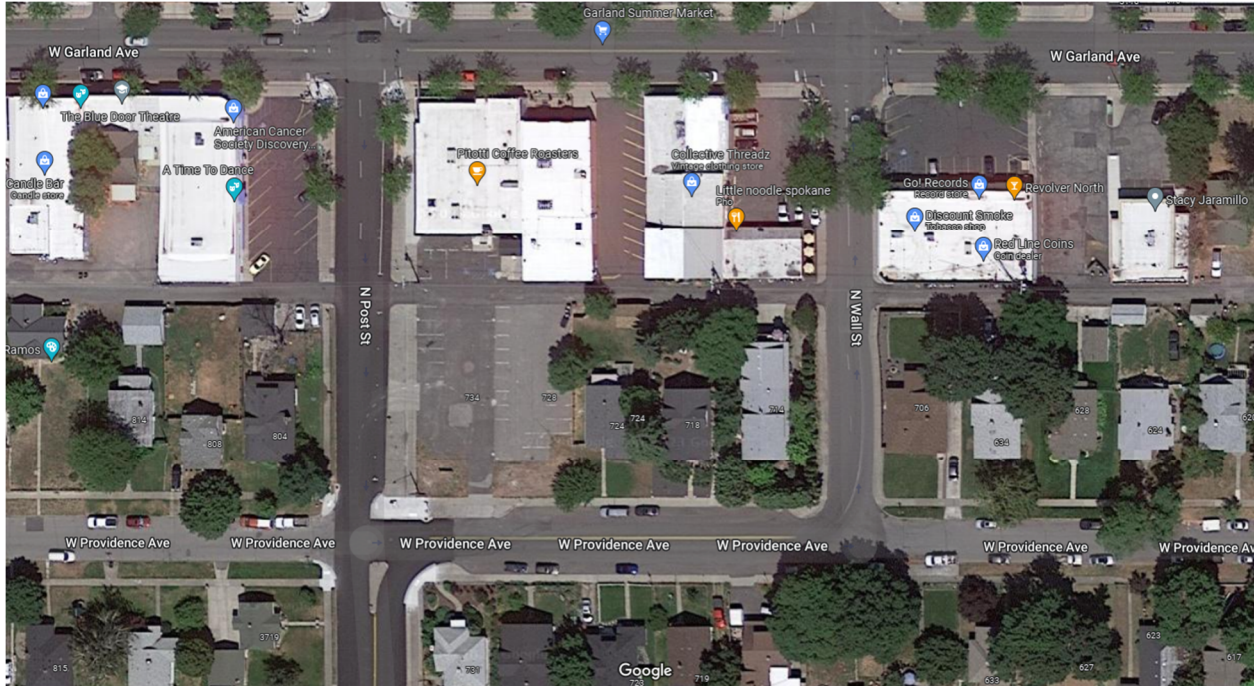
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Spokane Traffic Calming Master Plan

District:	3
Neighborhood:	North Hill
Project Extent:	Wall Street/Post Street Couplet near Providence Avenue Estimate: \$318,000

Problem Statement: Residents of the North Hill neighborhood raised concerns over the merging and diverging traffic on one-way couplets Wall Street and Post Street near Providence Avenue.



Wall Street/Post Street couplet near Providence Avenue

Traffic Analysis:

Wall Street is a northbound one-way roadway with two lanes and a posted speed limit of 30 miles per hour in the study area. Post Street is a southbound one-way with two lanes and a posted speed limit of 30 miles per hour in the study area. Both Wall Street and Post Street are classified as minor arterials. In the study area, Providence Avenue provides one lane in each direction with on-street parking, is classified as a local street, and does not have a posted speed limit. There are no bike lanes or pedestrian crosswalks in this study area, but there is a robust sidewalk network.

The following table shows the estimated 2022 daily traffic volumes on Providence Avenue at the Wall Street intersection. The highest daily volume was 632 vehicles in the eastbound direction. Speed data was not available.

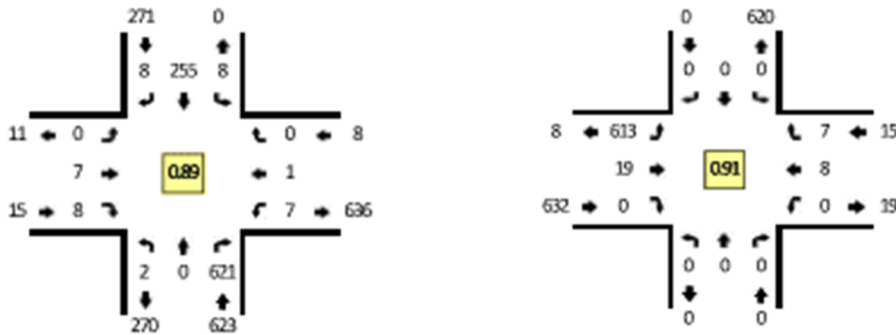
Spokane Traffic Calming Master Plan

2022 Daily Traffic on Providence Avenue

Direction	# Lanes	2022 Estimated Daily Traffic (Vehicles per day)	85 th Percentile Speed (mph)	Posted Speed (mph)
Providence Avenue ^a				
EB	1	632		
WB	1	8	N/A	N/A
Both Dir.	2	640		

^a Traffic data collected in November 2022

The figure below shows the existing PM peak hour traffic volumes at the Post Street (left figure) and Wall Street (right figure) intersections with Providence Avenue, based on a traffic count from November 2, 2022.



Recommended Solution:

There are very few people per day who use the allowed two-way movements on Providence Avenue between Post Street and Wall Street. Most trips follow the one-way flow of the couplet. In order to reduce conflict and driver confusion, the following improvements are recommended.

- Close the southbound left turn movement from Post Street to Providence Avenue which serves very low volumes.
- Close the east leg of the Providence Avenue and Wall Street intersection which serves very low volumes.
- Convert Providence Avenue to one-way eastbound flow between Post Street to Wall Street, consistent with Wall Street traffic flow. Providence Avenue would provide two eastbound west lanes and two left turn lanes onto Wall Street which would serve the high peak hour demand.



LEGEND

	PROPERTY LINE		INSTALL NEW CONCRETE SIDEWALK PER COS STD PLAN F-102B
	EXISTING CURB		INSTALL NEW CURB PER COS STD PLAN F-106B
	EXISTING CONCRETE SIDEWALK		INSTALL CURB RAMP PER COS STD PLAN F-105
	INSTALL LANDSCAPING STRIP		INSTALL NEW TRAFFIC ISLAND CONCRETE PER COS STD PLAN F-108

CONSTRUCTION NOTES

- 1 INSTALL NEW CATCH BASIN TYPE 1 AND 8" DIAM. PIPE AS NECESSARY. CONNECT TO EXISTING CATCH BASIN WHERE SHOWN.
- 2 REMOVE EXISTING INLET. PLUG AND ABANDON EXISTING PIPE.
- 3 INSTALL CONCRETE DRIVEWAY TYPE 2 PER COS STD PLAN F-103A

**PRELIMINARY
NOT FOR CONSTRUCTION**

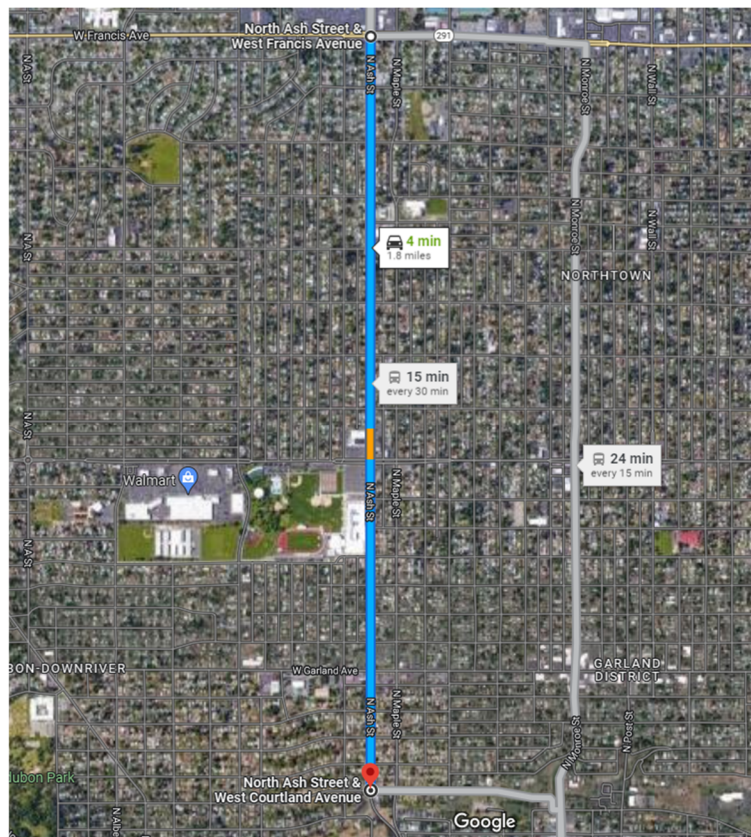
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Spokane Traffic Calming Master Plan

District:	3
Neighborhood:	North Hill
Project Extent:	Ash Street Corridor from Francis Avenue to Courtland Avenue
	Estimate: 579,000

Problem Statement: Residents of the North Hill neighborhood raised concerns over insufficient pedestrian crossing facilities along Ash Street from Francis Avenue to Courtland Avenue (1.8 miles).



Ash Street Corridor from Francis Avenue to Courtland Avenue

Traffic Analysis:

Ash Street within the study area is classified as a one-way urban principal arterial with a posted speed limit of 30 miles per hour and provides two lanes. Francis Avenue is also classified as a principal arterial with a posted speed limit of 35 miles per hour and provides two lanes in each direction and a road diet for left turn movements until the intersection with Ash Street, which has three lanes in each direction and no road diet. Courtland Avenue is a local street, does not have a posted speed limit in the immediate surroundings of the study area, and provides one lane in each direction and enough right-of-way for on-street parking on either side of the roadway. The sidewalk network in the study corridor is predominantly complete, with a few blocks needing sidewalks on at least one side of the roadway. Bike lanes are not provided in the study corridor. The pedestrian crossing facilities are found mainly at higher

Spokane Traffic Calming Master Plan

classification roadways and school zones (Rowan Ave, Wellesley Ave, Longfellow Ave, etc.) along the corridor.

The table below shows the 2022 daily traffic volumes along Ash Street from Francis Avenue to Courtland Street. The highest daily volume had 12,095 vehicles in the southbound direction. The highest 85th percentile speed was 39 miles per hour (9 miles per hour greater than the posted speed limit). The data indicated there is a speeding issue on the corridor.

2022 Daily Traffic on Ash Street from Francis Avenue to Courtland Avenue

Direction	# Lanes	2022 Estimated Daily Traffic (Vehicles per day)	85 th Percentile Speed (mph)	Posted Speed (mph)
Ash Street from Francis Avenue to Courtland Avenue ^a				
SB	2	12,095	39	30

^a Traffic data collected in November 2022.

To increase pedestrian safety, speeding vehicles must be addressed and traffic calming solutions should be implemented, where appropriate. Crossing treatment analysis using NCHRP 562 indicates that due to corridor speeds and volume, the red treatment category is recommended for pedestrian crossings which includes pedestrian hybrid beacons and signals. If the 85th percentile speed was lowered to 35 miles per hour, a RRFB (rectangular rapid flashing beacon) would be an appropriate treatment at pedestrian crossings.

Recommended Solution:

Since this is an arterial corridor, speed bumps and traffic circles are not appropriate. However, pedestrian crossing visibility can be improved to alert drivers of the need to slow down for pedestrians in the area, especially busy areas around schools and commercial areas. Curb extensions could be used to narrow the roadway to reduce vehicle speeds and shorten pedestrian crossing lengths. Ash Street has a wide curb-to-curb width, approximately 38 feet providing two southbound vehicle lanes and no on-street parking (except school buses during restricted times).

The installation of curb extensions should be considered on Ash Street along the Shadle Park High School frontage.

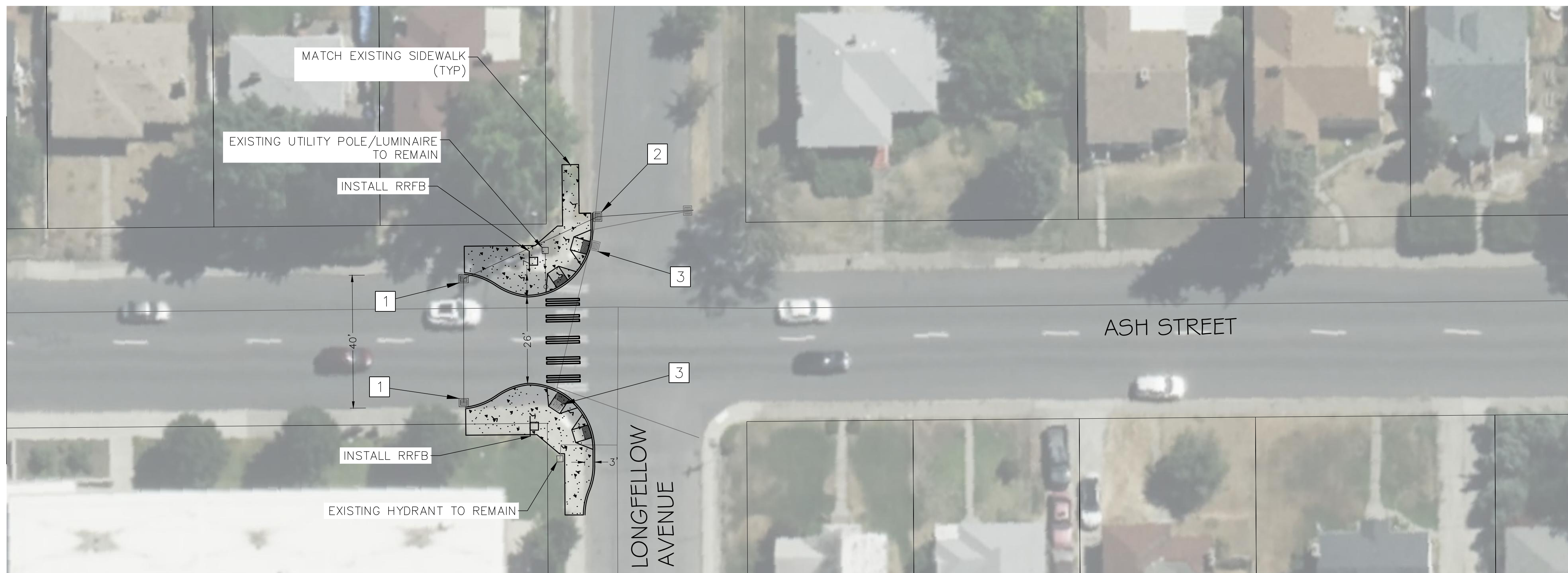
- Longfellow Avenue (existing school crossing and designated a city Bike Friendly Route and future Neighborhood Greenway)
- Heroy Avenue (existing school crossing)
- Princeton Avenue (existing school crossing and southbound bus stop)

If the installation of curb extensions along the school frontage reduces vehicle speeds, the installation of a RRFB (rectangular rapid flashing beacon) would be recommended at the Longfellow Avenue crossing which connects to the primary entrance to the high school.

It is recommended to enhance the existing crossings at Ash Street/Rowan Avenue with signalized pedestrian crossings provided by a pedestrian hybrid beacon or a full traffic signal. A new traffic signal would provide additional benefits from controlling intersection operations for all modes.

Spokane Traffic Calming Master Plan

It is recommended that up to two speed feedback signs be added on Ash Street. Potential locations are near Gordon Avenue, Queen Avenue and Central Avenue to alert drivers of the posted speed limit.



NOTE:
 1. SPEED DISPLAY DESIGNS ARE AN ADDITIONAL RESOURCE THAT CAN BE USED ON ASH STREET PENDING FURTHER SPEED STUDIES. POTENTIAL LOCATIONS FOR THESE SIGNS ARE NEAR GORDON AVENUE AND ASH STREET, CENTRAL AVENUE AND ASH STREET, AND QUEEN AVENUE AND ASH STREET.

MATCHLINE ABOVE

MATCHLINE BELOW

LEGEND

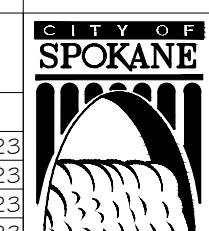
	PROPERTY LINE		INSTALL LANDSCAPING STRIP
	EXISTING CURB		INSTALL CROSSWALK PER COS STD PLAN G-6 I
	PROPOSED INLET		INSTALL CURB RAMP PER COS STD PLAN F-1 O5
	INSTALL NEW CONCRETE SIDEWALK PER COS STD PLAN F-1 O2B		
	INSTALL NEW CURB PER COS STD PLAN F-1 O6B		

CONSTRUCTION NOTES

- 1 INSTALL NEW CATCH BASIN TYPE 1 AND 8" DIAM. PIPE AS NECESSARY. CONNECT TO NEW CATCH BASIN WHERE SHOWN.
- 2 INSTALL NEW CATCH BASIN TYPE 1 AND 8" DIAM. PIPE AS NECESSARY. CONNECT TO EXISTING CATCH BASIN WHERE SHOWN.
- 3 REMOVE EXISTING INLET. PLUG AND ABANDON EXISTING PIPE.
- 4 EXISTING SCHOOL CROSSING SIGN TO REMAIN.

DATE	BY	PROJ.	DESCRIPTION	DATE	BY	PROJ.	F.P.N.	U.S.N.	FROM	TO	COUNCIL ACCEPT DATE
			AS BUILT								

NAVD88 = (OLD CBM ELEV.) - (1.3.13)	AS OF JANUARY, 2000 USE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
BENCHMARK LOCATION	None Given
NAVD88 ELEV.	None Given
CBM NO.	None Given
BAR IS ONE INCH ON ORIGINAL DRAWING.	HORIZONTAL PLANIMETER 1" = 20'
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	VERTICAL PROFILE ONLY N/A
	SCALE



CITY OF SPOKANE, WASHINGTON
 DEPARTMENT OF ENGINEERING SERVICES
 808 WEST SPOKANE FALLS BLVD.
 SPOKANE, WASHINGTON 99201-3343
 (509) 625-6300

PROJECT NAME: SPOKANE TRAFFIC CALMING MASTER PLAN	
SEGMENT LIMITS: ASH STREET FRANCIS AVENUE TO COURTLAND AVENUE	TYPE OF IMPROVEMENT: TRAFFIC
CITY PROJECT NUMBER	CITY PLAN NUMBER
PROJECT LIMITS: NORTH HILL NEIGHBORHOOD	EPN: TRAFFIC DESIGN

PRELIMINARY
NOT FOR CONSTRUCTION

4
4 of 6



LEGEND

- PROPERTY LINE
- PROPOSED SIGN

CONSTRUCTION NOTES

- 1 INSTALL 20 MPH SPEED LIMIT SIGN R02-01

NOTE:

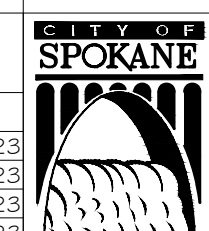
- 1. CITY COUNCIL RESOLUTION ADOPTING 20 MPH SPEED LIMIT IS REQUIRED FOR THIS PROJECT.



PRELIMINARY
NOT FOR CONSTRUCTION

5
5 of 6

NAVD88 = (OLD CBM ELEV.) - (1.3.1.3)		AS OF JANUARY, 2000 USE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)											
BENCHMARK LOCATION		None Given											
NAVD88 ELEV.	None Given	HORIZONTAL PLANS/PROFILE	1" = 40'										
CBM NO.	None Given	VERTICAL PROFILE ONLY	N/A										
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		SCALE											
CURRENT C.O.S. DESIGN STANDARDS ADOPTED FEB. 2007		<table border="1"> <tr> <th>BY</th> <th>DATE</th> </tr> <tr> <td>DRW</td> <td>02/2023</td> </tr> <tr> <td>REV</td> <td>05/2023</td> </tr> <tr> <td>CHK</td> <td>02/2023</td> </tr> <tr> <td>APP</td> <td>02/2023</td> </tr> </table>		BY	DATE	DRW	02/2023	REV	05/2023	CHK	02/2023	APP	02/2023
BY	DATE												
DRW	02/2023												
REV	05/2023												
CHK	02/2023												
APP	02/2023												



CITY OF SPOKANE, WASHINGTON
DEPARTMENT OF ENGINEERING SERVICES
808 WEST SPOKANE FALLS BLVD.
SPOKANE, WASHINGTON 99201-3343
(509) 625-6300

PROJECT NAME: SPOKANE TRAFFIC CALMING MASTER PLAN		TYPE OF IMPROVEMENT: TRAFFIC	
SEGMENT LIMITS: NEIGHBORHOOD PARKS CLARK, B.A. PARK		CITY PROJECT NUMBER	CITY PLAN NUMBER
PROJECT LIMITS: NORTH HILL NEIGHBORHOOD		EPA: TRAFFIC DESIGN	



LEGEND

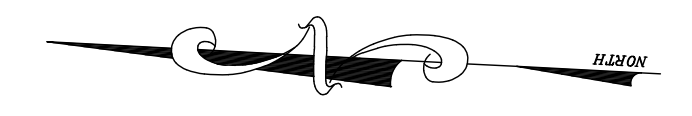
	PROPERTY LINE
	PROPOSED SIGN

- CONSTRUCTION NOTES**
1. INSTALL 20 MPH SPEED LIMIT SIGN R02-01
 2. EXISTING SCHOOL ZONE 20 MPH SPEED LIMIT WHEN CHILDREN ARE PRESENT SIGN R02-01 TO REMAIN, REMOVE EXISTING 25 MPH SPEED LIMIT SIGN R02-01
 3. REMOVE EXISTING 30 MPH SPEED LIMIT SIGN R02-01, INSTALL 20 MPH SPEED LIMIT SIGN R02-01
 4. EXISTING SCHOOL ZONE 20 MPH SPEED LIMIT WHEN CHILDREN ARE PRESENT SIGN R02-01 TO REMAIN
 5. REMOVE EXISTING 25 MPH SPEED LIMIT SIGN R02-01, INSTALL 20 MPH SPEED LIMIT SIGN R02-01

NOTE:

1. CITY COUNCIL RESOLUTION ADOPTING 20 MPH SPEED LIMITS IS REQUIRED FOR THIS PROJECT.

**PRELIMINARY
NOT FOR CONSTRUCTION**



NAVD88 = (OLD CBM ELEV.) - (1.3.13)		AS OF JANUARY, 2000 USE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)													
BENCH MARK LOCATION		None Given													
NAVD88 ELEV.	None Given	HORIZONTAL PLANS/PROFILE	1" = 75'												
CBM NO.	None Given	VERTICAL PROFILE ONLY	N/A												
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		SCALE													
CURRENT C.O.S. DESIGN STANDARDS ADOPTED FEB. 2007															
CITY OF SPOKANE, WASHINGTON DEPARTMENT OF ENGINEERING SERVICES 808 WEST SPOKANE FALLS BLVD. SPOKANE, WASHINGTON 99201-3343 (509) 625-6300		<table border="1"> <tr> <th>DATE</th> <th>BY</th> <th>DRAWN</th> <th>REVISION</th> <th>CHECKED</th> <th>APPROVED</th> </tr> <tr> <td>02/2023</td> <td>DRV</td> <td>JS</td> <td>AM</td> <td></td> <td></td> </tr> </table>		DATE	BY	DRAWN	REVISION	CHECKED	APPROVED	02/2023	DRV	JS	AM		
DATE	BY	DRAWN	REVISION	CHECKED	APPROVED										
02/2023	DRV	JS	AM												

PROJECT NAME:	SPOKANE TRAFFIC CALMING MASTER PLAN	
SEGMENT LIMITS:	NEIGHBORHOOD PARKS FRANKLIN PARK	
PROJECT LIMITS:	NORTH HILL NEIGHBORHOOD	
TYPE OF IMPROVEMENT:	TRAFFIC	
CITY PROJECT NUMBER:	CITY PLAN NUMBER:	
EPN:	TRAFFIC DESIGN	