

Spokane Traffic Calming Master Plan

District:	1
Neighborhood:	Shiloh Hills
Project Extent:	Standard Street and Colton Street from Magnesium Road to Francis Avenue (includes Greta Avenue to Calkins Drive)
	Estimate: \$763,000

Problem Statement: Residents of the Shiloh Hills neighborhood raised concerns over vehicle speeds on the Addison Street / Standard Street / Colton Street north-south corridor between Magnesium Road and Francis Avenue (1.6 miles). An additional concern was raised specifically about Standard Street between Greta Avenue and Calkins Drive near Friendship Park. The figure on the following page shows the project extents graphically; this north-south corridor is classified a collector street and has a 25 mph speed limit for most of the project extents, with a 30 mph speed limit south of Lyons Avenue. The speed limit reduces to 20 mph in front of Friendship Park (just north of Cozza Drive).

Traffic Analysis:

The table below shows estimated 2022 daily traffic volumes and 85th percentile speeds along the corridor. As shown in the table, there are only 1,300 vehicles per day on the north end of the corridor (north of Lincoln Road); however, traffic volumes south of Lincoln Road are higher with 4,000 to 5,000 vehicles per day. Vehicle speeds are high throughout the corridor, with an 85th percentile speed of 33 to 38 mph (8 to 13 mph higher than the posted speed limit).

2022 Daily Traffic and 85th Percentile Speeds on Project Corridor

Location	# Lanes	2022 Estimated Daily Traffic (Vehicles per day) ^a	85 th Percentile Speed (mph)	Posted Speed (mph)
Standard St (North of Lincoln Rd)	2	1,324	33	25
Standard St (South of Lincoln Rd)	2	4,150	38	25
Standard St (South of Cozza Dr)	2	5,233	33	25

^a Traffic volumes were grown at a 1.0% annual growth rate, to estimate 2022 traffic conditions. Seasonal adjustment factors (SAF) were applied based on historical traffic data from the city to estimate average daily traffic. Traffic data north of Lincoln Rd was collected on November 16, 2022 (SAF of 1.01). Traffic data south of Lincoln Rd and Cozza Dr were collected on April 23, 2019 (SAF of 0.98).

The table below shows the severity and types of crashes occurring on the corridor over the last five years. There were a total of 34 crashes, with turning-related crashes being the most common crash type.

Crashes on Project Corridor, between Magnesium Road and Francis Avenue (2017 to 2021)

Crash Type	Crash Severity					Total
	Fatal	Major Injury	Minor Injury	Property Damage Only	Unknown	
Rear End	-	-	1	3	-	4
Turning	-	-	7	13	-	20
Fixed Object	-	-	2	11	2	15
Pedestrian	-	-	1	1	-	2
Head On	-	-	1	1	-	2
Sideswipe	-	-	-	2	-	2
Total	0	0	12	31	2	45

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Crashes were highest at the intersections where Standard Street intersects non-local roads, including Lincoln Road (nine crashes), Lyons Avenue (six crashes), and Cozza Drive (five crashes). Crashes at these intersections made up 44% of the total crashes on the corridor. Additionally, it is important to note that there were no reported crashes in front of Friendship Park (Greta Avenue to Calkins Drive).

Curb extensions could be considered as a means to lower travel speeds on the corridor. These features narrow the roadway width, resulting in lower speeds and shorter pedestrian crossings. Curb extensions are estimated to reduce the 85th percentile speed by 3 mph.¹ Curb extensions were proposed near locations of particular concern along the corridor, while considering input from the City of Spokane. Curb extensions are recommended at the north and south ends of Friendship Park (Calkins Drive and Greta Avenue). Curb extensions are also recommended at the pedestrian crossing at St. Thomas More Way (north of Lincoln Road). Further information about the St. Thomas More Way intersection upgrades can be found in its respective project report.

To facilitate the installation of curb extensions near Friendship Park, it is recommended that sidewalks be added along the west side of Standard Street from Lidgerwood Street to Cozza Drive. Adding sidewalk on this segment will allow for continuous sidewalk along the west side of the project corridor from Francis Avenue to Magnesium Road.

Recommended Solution:

It is recommended that curb extensions be considered on Standard Street at the Calkins Drive, Greta Avenue, and St. Thomas More Way intersections. Curb extensions will narrow the roadway width and are expected to reduce travel speeds. Additionally, it is recommended that sidewalk be added along the west side of Standard Street (from Lidgerwood Street to Cozza Drive), allowing for continuous sidewalk along the west side of the project corridor.

¹ *Engineering Speed Management Countermeasures: A Desktop Reference of Potential Effectiveness in Reducing Speed.* Federal Highway Administration. July 2014.

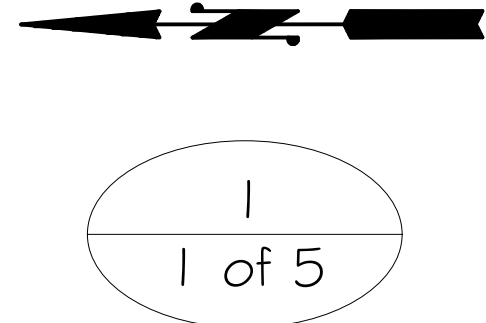


LEGEND

	PROPERTY LINE
	EXISTING CONCRETE SIDEWALK
	EXISTING CURB
	INSTALL NEW CONCRETE SIDEWALK PER COS STD PLAN F-102B
	INSTALL NEW CURB PER COS STD PLAN F-106B
	INSTALL CURB RAMP PER COS STD PLAN F-105
	INSTALL LANDSCAPING, NATIVE PLANTINGS

- CONSTRUCTION NOTES**
- 1 INSTALL CONCRETE DRIVEWAY TYPE 2 PER COS STD PLAN F-103A
 - 2 INSTALL NEW CATCH BASIN TYPE 1 AND 8" DIAM. PIPE AS NECESSARY. CONNECT TO EXISTING DRYWELL WHERE SHOWN
 - 3 EXISTING DRYWELL TO REMAIN IN PLACE
 - 4 REMOVE EXISTING INLET, PLUG AND ABANDON EXISTING PIPE.
 - 5 EXISTING MANHOLE TO REMAIN IN PLACE

**PRELIMINARY
NOT FOR CONSTRUCTION**



NAVD88 = (OLD CBM ELEV.) - (1.313) AS OF JANUARY, 2000 USE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)									
BENCH MARK LOCATION: None Given									
CURRENT C.O.S. DESIGN STANDARDS ADOPTED FEB. 2007									
NAVD88 ELEV.: None Given		HORIZONTAL PLAN/PROFILE: 1" = 20'		BY: DATES		DRAWN: DRV 1/2/2022		REVISIONS:	
CBM NO.: None Given		VERTICAL PROFILE ONLY: N/A		CHECKED: JS 1/2/2022		APPROVED: AM 1/2/2022		CITY OF SPOKANE, WASHINGTON DEPARTMENT OF ENGINEERING SERVICES 808 WEST SPOKANE FALLS BLVD. SPOKANE, WASHINGTON 99201-3343 (509) 625-6700	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY									
SCALE									
NAVD88 DATUM									
CALL BEFORE YOU DIG 1-800-424-5555									

PROJECT NAME: SPOKANE TRAFFIC CALMING MASTER PLAN		TYPE OF IMPROVEMENT: TRAFFIC	
SEGMENT LIMITS: STANDARD STEET LIDGERWOOD STREET TO COZZA DRIVE		CITY PROJECT NUMBER: CITY PLAN NUMBER:	
PROJECT LIMITS: SHILOH HILLS NEIGHBORHOOD		DATE: TRAFFIC DESIGN	

Plotted On: May 14, 2023 - 7:42pm

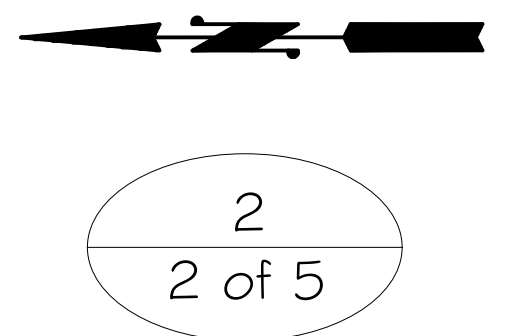


LEGEND

	PROPERTY LINE
	EXISTING CONCRETE SIDEWALK
	EXISTING CURB
	INSTALL NEW CONCRETE SIDEWALK PER COS STD PLAN F-102B
	INSTALL NEW CURB PER COS STD PLAN F-106B
	INSTALL CURB RAMP PER COS STD PLAN F-105
	INSTALL LANDSCAPING, NATIVE PLANTINGS

- CONSTRUCTION NOTES**
- 1 INSTALL CONCRETE DRIVEWAY TYPE 2 PER COS STD PLAN F-103A
 - 2 INSTALL NEW CATCH BASIN TYPE 1 AND 8" DIAM. PIPE AS NECESSARY. CONNECT TO EXISTING DRYWELL WHERE SHOWN
 - 3 EXISTING DRYWELL TO REMAIN IN PLACE
 - 4 REMOVE EXISTING INLET. PLUG AND ABANDON EXISTING PIPE.
 - 5 EXISTING MANHOLE TO REMAIN IN PLACE

**PRELIMINARY
NOT FOR CONSTRUCTION**



Plotted On: May 14, 2023 - 7:43pm

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NAVD88 ELEV.: None Given									
SCALE: HORIZONTAL PLAN/PROFILE: 1" = 20' VERTICAL PROFILE ONLY: N/A									
BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.									
NAVD88 DATUM									
CITY OF SPOKANE, WASHINGTON DEPARTMENT OF ENGINEERING SERVICES 808 WEST SPOKANE FALLS BLVD. SPOKANE, WASHINGTON 99201-3343 (509) 625-6700									
SPOKANE									
PROJECT NAME: SPOKANE TRAFFIC CALMING MASTER PLAN									
SEGMENT LIMITS: STANDARD STREET NORTH DAKOTA STREET TO COZZA DRIVE									
PROJECT LIMITS: SHILOH HILLS NEIGHBORHOOD									
TYPE OF IMPROVEMENT: TRAFFIC									
CITY PROJECT NUMBER: CITY PLAN NUMBER:									
DATE: TRAFFIC DESIGN:									
CALL BEFORE YOU DIG 1-800-424-5555									

DATE	BY	PROJ.	DESCRIPTION	DATE	BY	PROJ.	E.F.N. / U.S.N.	FROM	TO	COUNCIL ACCEPT DATE	FROM	TO	ORD. NO.	DATE	FILE NO.
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AS BUILT															
GRADE ORDINANCE LIST															

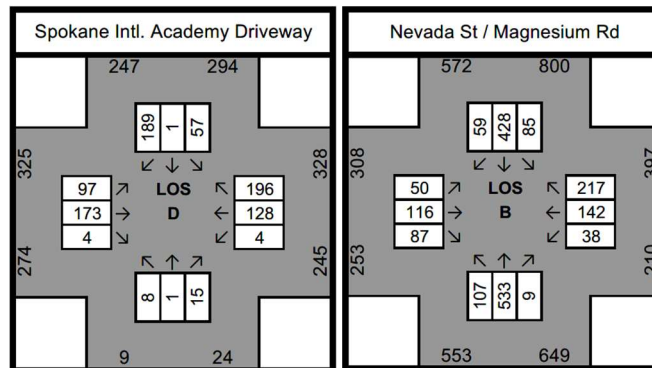
Spokane Traffic Calming Master Plan

District: 1
Neighborhood: Shiloh Hills
Project Extent: Magnesium Road from Nevada Street to North Dakota Street
 Estimate: \$90,000

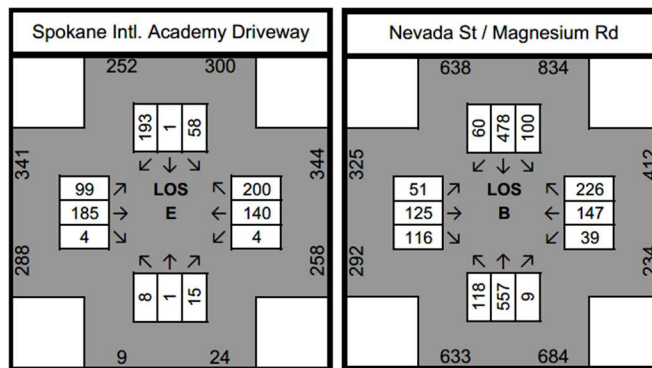
Problem Statement: Residents of the Shiloh Hills neighborhood raised concerns over congestion, access management, and safety on Magnesium Road between Nevada Street and North Dakota Street (0.2 miles). Particular concern was raised over access to Spokane International Academy, a new school which opened in the fall of 2021 (school driveway is located on Magnesium Road between North Dakota Street and Nevada Street). In the project area, Magnesium Road is classified as a collector with a 30 mph speed limit. The Nevada Street intersection is signalized, while North Dakota Street and the school driveway are stop-controlled on the north and south legs.

Traffic Analysis:

Traffic at the school driveway and the Nevada Street signal were obtained from a 2022 traffic impact study for a new apartment complex near Spokane International Academy.¹ The figures below show the existing AM peak hour volumes, along with the forecasted 2024 volumes with the new apartment complex. The AM peak hour was reported as it has higher traffic volumes at the school driveway.



Existing AM Peak Hour Traffic on Magnesium Avenue at Spokane Intl. Academy and Nevada Street



2024 Build AM Peak Hour Traffic on Magnesium Avenue at Spokane Intl. Academy and Nevada Street

¹ Magnesium Village, Expanded Trip Generation and Distribution Letter. Whipple Consulting Engineers, May 2022.

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As shown in the figures, the school driveway currently operates at LOS D (with 294 entering vehicles and 247 exiting vehicles in the AM peak hour). Traffic at the intersection is expected to slightly increase with the addition of the apartment complex (driveway expected to operate at LOS E). By comparison, there are no existing operational issues at the Nevada Street traffic signal and delay is relatively low (even with the development, the intersection is expected to operate at LOS C in the PM peak hour).

The southbound left-turn movement at the school driveway represents the highest-delay movement. The installation of a center two-way left-turn lane (TWLTL) on Magnesium Road would reduce delay, allowing southbound left turning vehicles to make two-stage left-turn movements out of the driveway (first crossing the westbound travel lane and then merging with eastbound traffic). It is recommended that this turn bay be extended east through Nevada street, transitioning to eastbound and westbound left-turn lanes at the signal. The addition of left turn-lanes improves safety and operations by removing left-turning traffic from the through travel lane.

The table below shows the severity and types of crashes occurring on Magnesium Road between Nevada Street and North Dakota Street over the last five years. There were a total of five crashes, including two injury crashes. Four of the five crashes occurred within 100 feet of the Nevada Street intersection. Of note, additional crash data was requested for 2022 (as the school opened in the fall of 2021). This traffic analysis will be updated to incorporate 2022 crash data, when made available.

Crashes on Magnesium Road, between North Dakota Street and Nevada Street (2017 to 2021)

Crash Type	Crash Severity					Total
	Fatal	Major Injury	Minor Injury	Property Damage Only	Unknown	
Rear End	-	-	2	1	-	3
Sideswipe	-	-	-	2	-	2
Total	0	0	2	3	0	5

An analysis of protected phasing was completed for the eastbound and westbound left turn lanes using the Federal Highway Administration Signal Timing Manual². This indicates that signals should be evaluated on the following conditions:

- Protected-permissive phasing was considered if sight distance did not meet the following criteria: 200 feet for 25 mph oncoming traffic speed, 280 feet for 35 mph oncoming traffic speed.
- Protected-permissive phasing was considered if the cross product of left turning and opposing thru volumes exceeds 50,000 for a left-turn movement with one opposing thru lane or exceeds 100,000 for a left-turn movement with two opposing thru lanes.
- Protected-permissive phasing was considered if left-turning crashes met the following criteria; four crashes in one year, six crashes in two years, or seven crashes in three years.
- Protected-only phasing was recommended for intersections with two or more left-turn lanes.

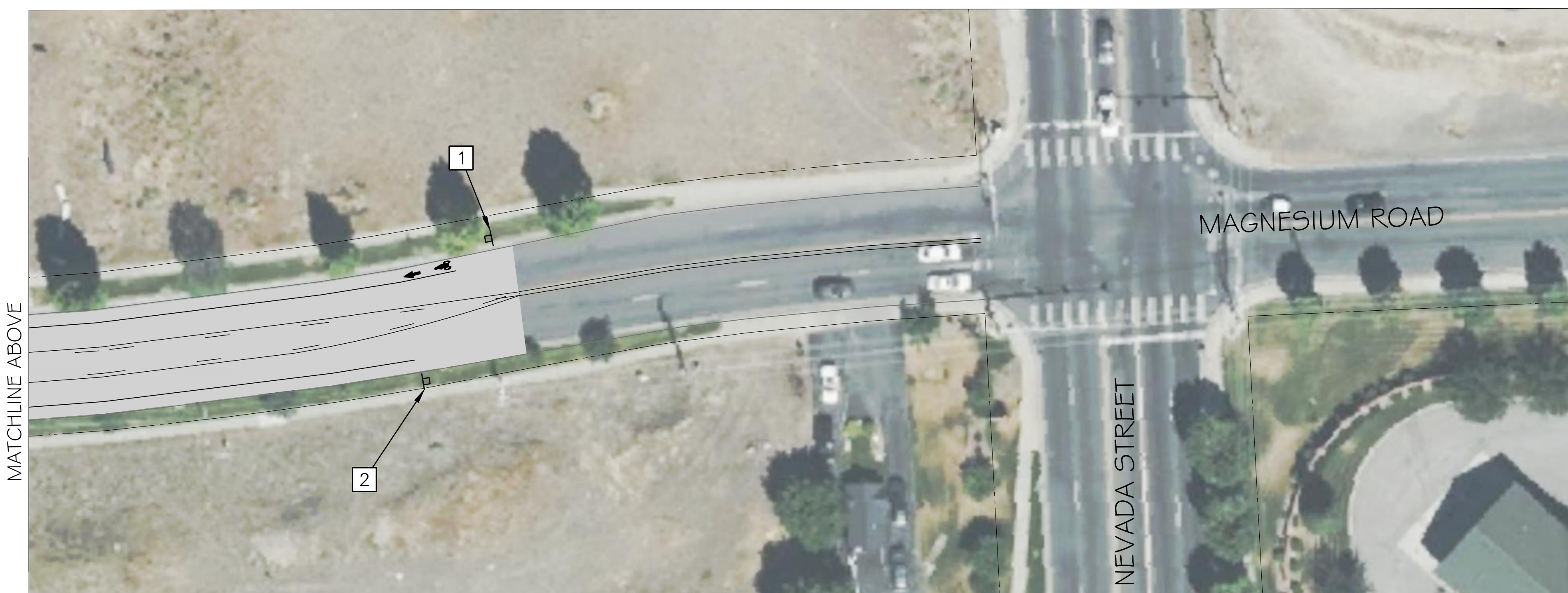
² Traffic Signal Timing Manual, Federal Highway Administration, June 2008.
<https://ops.fhwa.dot.gov/publications/fhwahop08024/index.htm>

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The eastbound and westbound left turn lanes did not meet any of the above criteria, and therefore it is recommended that the left turning movements remain permissive only.

Recommended Solution:

The Spokane International Academy opened in fall of 2021 and experiences high turning movements at the school driveway on Magnesium Road, just east of North Dakota Street. It is recommended that a center TWLTL be added on Magnesium Road from North Dakota Street to Nevada Street. This center turn lane will improve safety and operations at the school driveway by allowing two-stage left turns from the driveway and by removing left-turning vehicles from the mainline travel lane. It is recommended that the TWLTL transition to eastbound and westbound left-turn lanes at the Nevada Street traffic signal.



LEGEND

	PROPERTY LINE		INSTALL 2-WAY LEFT TURN LANE MARKING
	EXISTING CONCRETE SIDEWALK		INSTALL DOUBLE YELLOW STRIPE
	EXISTING CURB		INSTALL SOLID WHITE STRIPE
	EXISTING ASPHALT PAVEMENT		

CONSTRUCTION NOTES

- 1 INSTALL BIKE LANE BEGINNING SIGN PER COS STD PLAN G-61 AND TWO WAY LEFT TURN BEGINNING SIGN PER COS STD PLAN G-70
- 2 INSTALL BIKE LANE ENDING SIGN PER COS STD PLAN G-61 AND TWO WAY LEFT TURN ENDING SIGN PER COS STD PLAN G-70

**PRELIMINARY
NOT FOR CONSTRUCTION**

Plotted On: May 14, 2023 - 7:45pm

NAVD88 = (OLD CBM ELEV.) - (1.313) AS OF JANUARY, 2000 USE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)									
BENCH MARK LOCATION: None Given					CURRENT C.O.S. DESIGN STANDARDS ADOPTED FEB. 2007				
NAVD88 ELEV.: None Given					HORIZONTAL PLAN/PROFILE: 1" = 20'				
CBM NO.: None Given					VERTICAL PROFILE ONLY: N/A				
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY					SCALE:				
CITY OF SPOKANE, WASHINGTON DEPARTMENT OF ENGINEERING SERVICES 808 WEST SPOKANE FALLS BLVD. SPOKANE, WASHINGTON 99201-3343 (509) 625-6700									
PROJECT NAME: SPOKANE TRAFFIC CALMING MASTER PLAN									
SEGMENT LIMITS: MAGNESIUM ROAD NORTH DAKOTA STREET TO NEVADA STREET									
PROJECT LIMITS: SHILOH HILLS NEIGHBORHOOD									
TYPE OF IMPROVEMENT: TRAFFIC									
CITY PROJECT NUMBER: CITY PLAN NUMBER:									
DATE: BY: PROJ: E.F.N.: U.S.N.: FROM: TO: COUNCIL ACCEPT DATE: FROM: TO: ORD. NO.: DATE: FILE NO.:									
REVISIONS AS BUILT GRADE ORDINANCE LIST NAVD88 DATUM									



Spokane Traffic Calming Master Plan

District: 1
Neighborhood: Shiloh Hills
Project Extent: Standard Street and St. Thomas More Way Bus Stop
Estimate: \$240,000

Problem Statement: Residents of the Shiloh Hills neighborhood raised concerns over pedestrian crossing safety at the Standard Street and St. Thomas More Way intersection. In the project area, Standard Street is classified as a collector with a 25 mph speed limit, while St. Thomas More Way is classified as a local street with a 25 mph speed limit. A marked crosswalk exists on the north leg of the intersection with pedestrian crossing warning signs. The intersection is stop-controlled on the east and west legs.



Standard Street and St. Thomas More Way Intersection

Traffic Analysis:

The table below shows estimated 2022 daily traffic volumes and 85th percentile speeds on Standard Street just south of the St. Thomas More Way intersection. As shown in the table, there are around 1,300 vehicles per day on Standard Street, with an 85th percentile speed of 33 mph (8 mph higher than the posted speed limit).

2022 Daily Traffic and 85th Percentile Speeds on Standard Street (South of St. Thomas More Way)

Direction	# Lanes	2022 Estimated Daily Traffic (Vehicles per day)^a	85th Percentile Speed (mph)	Posted Speed (mph)
Both Dir.	2	1,324	33	25

^a Traffic data collected on November 16, 2022. A seasonal adjustment factor of 1.01 was applied to the traffic count, based on historical traffic data from the city to estimate average daily traffic.

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The table below shows the severity and types of crashes occurring at the Standard Street and St. Thomas More Way intersection over the last five years. There were a total of two crashes over the last five year period, including one pedestrian crash.

Crashes at Standard Street and St. Thomas More Way Intersection (2017 to 2021)

Crash Type	Crash Severity					Total
	Fatal	Major Injury	Minor Injury	Property Damage Only	Unknown	
Turning	-	-	1	-	-	1
Pedestrian	-	-	-	1	-	1
Total	0	0	1	1	0	2

The need for enhanced pedestrian crossing treatments (across Standard Street) was analyzed based on the National Cooperative Highway Research Program (NCHRP) Report 562.¹ This report uses four main criteria to identify appropriate crossing treatment: peak hour pedestrian volumes, conflicting vehicle volumes, conflicting vehicle speed, and crossing distance/number of travel lanes to be crossed.

Pedestrian crossing data from November 2, 2022 showed that there were 14 peak hour crossings on the north leg (occurring between 3:00 and 4:00 PM). Per NCHRP 562, with existing speeds, traffic volumes, and pedestrian volumes, no additional treatment would be required at this intersection. However, curb extensions on the west side of the intersection could be considered to reduce the crossing distance.

There is limited east-west sidewalk connectivity on St. Thomas More Way (no sidewalk exists east of the intersection). As a first-step, it is recommended that the sidewalk gap be filled just west of the intersection (gap extends 120 feet on the north side of St. Thomas More Way).

Recommended Solution:

It is recommended that curb extensions be added on the west side of the Standard Street and St. Thomas More Way intersection, to reduce the pedestrian crossing distance at the crosswalk. It is also recommended that the sidewalk gap be filled just west of the intersection (gap extends 120 feet on the north side of St. Thomas More Way).

¹ NCHRP Report 562: *Improving Pedestrian Safety and Unsignalized Crossings*. National Cooperative Highway Research Program, 2006. <https://nacto.org/wp-content/uploads/2010/08/NCHRP-562-Improving-Pedestrian-Safety-at-Unsignalized-Crossings.pdf>



LEGEND

	PROPERTY LINE
	EXISTING CONCRETE SIDEWALK
	EXISTING CURB
	INSTALL NEW CONCRETE SIDEWALK PER COS STD PLAN F-1 02B
	INSTALL NEW CURB PER COS STD PLAN F-1 06B
	INSTALL CURB RAMP PER COS STD PLAN F-1 05

- CONSTRUCTION NOTES**
- 1 INSTALL CONCRETE DRIVEWAY TYPE 2 PER COS STD PLAN F-1 03A
 - 2 INSTALL NEW CATCH BASIN TYPE 1 AND 8" DIAM. PIPE AS NECESSARY. CONNECT TO EXISTING DRYWELL WHERE SHOWN

**PRELIMINARY
NOT FOR CONSTRUCTION**



Plotted On: May 14, 2023 - 7:47pm

DATE	BY	PROJ.	DESCRIPTION	DATE	BY	PROJ.	E.F.N. / U.S.N.	FROM	TO	COUNCIL ACCEPT DATE	FROM	TO	ORD. NO.	DATE	FILE NO.
AS BUILT															
GRADE ORDINANCE LIST															
NAVD88 DATUM															

PROJECT NAME:	SPOKANE TRAFFIC CALMING MASTER PLAN		
SEGMENT LIMITS:	STANDARD STREET AND ST THOMAS MORE WAY		
PROJECT LIMITS:	SHILOH HILLS NEIGHBORHOOD	TYPE OF IMPROVEMENT:	TRAFFIC
CITY PROJECT NUMBER		CITY PLAN NUMBER	

CITY OF SPOKANE, WASHINGTON
DEPARTMENT OF ENGINEERING SERVICES
808 WEST SPOKANE FALLS BLVD.
SPOKANE, WASHINGTON 99201-3343
(509) 625-6700

CALL BEFORE YOU DIG 1-800-424-5555

Spokane Traffic Calming Master Plan

District: 1
Neighborhood: Shiloh Hills
Project Extent: Standard Street and Lyons Avenue Intersection
 Estimate: \$138,000

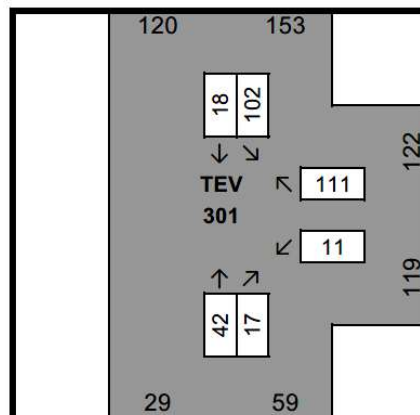
Problem Statement: Residents of the Shiloh Hills neighborhood raised concerns over traffic control, pedestrian crossings, and lack of signage at the Standard Street and Lyons Avenue intersection. Both streets are classified as local streets with a speed limit of 25 mph. The intersection is a three-legged intersection with no stop or yield control signs on any approaches.



Standard Street and Lyons Avenue Intersection

Traffic Analysis:

The figure below shows the existing PM peak hour traffic volumes at the Standard Street and Lyons Avenue intersection, based on a traffic count from November 1, 2022. These volumes were adjusted with a seasonal adjustment factor of 1.05, based on historical traffic data from the city to estimate the 30th highest hour. This count shows that the east and north legs are the highest volume legs.



PM Peak Hour Traffic at Standard Street and Lyons Avenue

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The table below shows the type and severity of crashes at the Standard Street and Lyons Avenue intersection over the last five years. There were only four crashes at this intersection, with most crashes being fixed object collisions.

Crashes at Standard Street and Lyons Avenue Intersection (2017 to 2021)

Crash Type	Crash Severity				Total
	Fatal	Major Injury	Minor Injury	Property Damage Only	
Turning	-	-	-	1	1
Fixed Object	-	-	-	3	3
Total	0	0	0	4	4

Currently the intersection is uncontrolled, with no stop or yield control signs on any approaches. Section 2B.06 of the Manual on Uniform Traffic Control Devices (MUTCD)¹ states that the use of stop signs on the minor-street approaches should be considered if engineering judgement indicated that a stop is always required because of one or more of the following conditions:

- a) The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day;
- b) A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway; and/or
- c) Crash records indicate that three or more crashes that are susceptible to correction by the installation of a stop sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of way to traffic on the through street or highway.

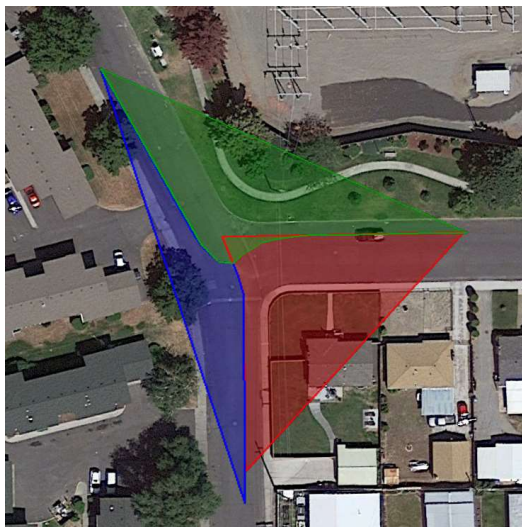
With the assumption that PM peak hour traffic volumes are 10% of daily traffic volumes, the total vehicular traffic on the through street (Standard Street) is only 1,790 vehicles per day. Therefore requirements (a) and (c) are not met. However, as shown in the figure below, vehicles traveling northbound and westbound do not have adequate sight distance due to the residential property on the southeast corner (sight distance conflict shown in red polygon). Because of these sight restrictions, vehicles are required to slow down in order to proceed. Typical right of way guidelines² would indicate that drivers yield to vehicles coming from their right. Given that sight distance is impacted by the property on the southeast corner, it is recommended that a stop sign be installed on the westbound approach to improve intersection safety.

¹ Federal Highway Administration, *Manual on Uniform Traffic Control Devices, 2009 Edition, Pg. 52.*
<https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part2b.pdf>

² Washington State Department of Licensing, *Washington Driver Guide, 2023, Page 3-25.*
<https://www.dol.wa.gov/driverslicense/docs/driverguide-en.pdf>

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It is also recommended that curb extensions are installed on the east leg on the intersection to narrow the intersection and lower speeds on approaches to the intersection. Curb extensions are expected to reduce the 85th percentile speed by 3 mph.³



Standard Street and Lyons Avenue Intersection – Required Sight Distance Triangles

The need for enhanced pedestrian crossing treatments (across Standard Street) was analyzed based on the National Cooperative Highway Research Program (NCHRP) Report 562.⁴ This report uses four main criteria to identify appropriate crossing treatment: peak hour pedestrian volumes, conflicting vehicle volumes, conflicting vehicle speed, and crossing distance/number of travel lanes to be crossed. Pedestrian crossing data collected on November 1, 2022 showed that there were only three pedestrian crossings on the south leg in the peak hour.

Per NCHRP 562, with existing speeds, traffic volumes, and pedestrian volumes, no crossing treatment would be recommended at this location. However, the pedestrian volumes were collected in November and therefore it is recommended that pedestrian volumes be monitored and counted during summer months when volumes are likely to be higher. There would need to be 20 or more pedestrians during the peak hour to warrant a signed and striped crosswalk at this location.

Recommended Solution:

It is recommended that a stop sign be added on the east leg of the intersection due to sight distance conflicts. No pedestrian crossing treatments are recommended at this time; however, it is recommended that pedestrian volumes be re-counted during warmer summer months to better understand peak pedestrian crossing volumes. Additionally, it is recommended that curb extensions be installed on the east leg to lower vehicle speeds entering the intersection.

³ *Engineering Speed Management Countermeasures: A Desktop Reference of Potential Effectiveness in Reducing Speed.* Federal Highway Administration. July 2014.

⁴ *NCHRP Report 562: Improving Pedestrian Safety and Unsignalized Crossings.* National Cooperative Highway Research Program, 2006. <https://nacto.org/wp-content/uploads/2010/08/NCHRP-562-Improving-Pedestrian-Safety-at-Unsignalized-Crossings.pdf>



LEGEND

	INSTALL NEW CONCRETE SIDEWALK PER COS STD PLAN F-102B
	INSTALL LANDSCAPING, NATIVE PLANTINGS
	INSTALL CURB RAMP PER COS STD PLAN F-105
	INSTALL CROSSWALK PER COS STD PLAN G-6.1
	PROPERTY LINE

- CONSTRUCTION NOTES**
- 1 INSTALL NEW CATCH BASIN TYPE 1 AND 8" DIAM. PIPE AS NECESSARY. CONNECT TO NEW DRYWELL WHERE SHOWN.
 - 2 REMOVE EXISTING INLET. PLUG AND ABANDON EXISTING PIPE.
 - 3 INSTALL "NO PARKING" SIGN R07-01 APPROXIMATELY 40' FROM LYONS AVENUE

**PRELIMINARY
NOT FOR CONSTRUCTION**



Plotted On: May 14, 2023 - 7:48pm

NAVD88 = (OLD CBM ELEV.) - (1.3.13)		AS OF JANUARY, 2000 USE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)	
BENCH MARK LOCATION: None Given		CURRENT C.O.S. DESIGN STANDARDS ADOPTED FEB. 2007	
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BAR IS ONE INCH ON ORIGINAL DRAWING.		CHECKED: JS 1/2/2022	
HORIZONTAL PLAN/PROFILE: 1" = 16'		APPROVED: AM 1/2/2022	
VERTICAL PROFILE ONLY: N/A		CITY OF SPOKANE	
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY		CITY OF SPOKANE, WASHINGTON DEPARTMENT OF ENGINEERING SERVICES 808 WEST SPOKANE FALLS BLVD. SPOKANE, WASHINGTON 99201-3343 (509) 625-6700	

PROJECT NAME: SPOKANE TRAFFIC CALMING MASTER PLAN	
SEGMENT LIMITS: STANDARD STREET AND LYONS AVENUE	TYPE OF IMPROVEMENT: TRAFFIC
CITY PROJECT NUMBER:	CITY PLAN NUMBER:
PROJECT LIMITS: SHILOH HILLS NEIGHBORHOOD	DATE: TRAFFIC DESIGN
CALL BEFORE YOU DIG 1-800-424-5555	