



CITY OF MOSES LAKE
STAFF REPORT

To: John Williams, City Manager
From: Gilbert Alvarado, Community Development Director
Date: April 12, 2016
Proceeding Type: Motion
Subject: State Environmental Policy Act – Planned Action

Legislative History:

• First Presentation:	April 12, 2016
• Second presentation:	
• Action:	Motion

Staff Report Summary

Attached is an Ordinance that establishes a Planned Action for the Grant County International Airport Employment Center pursuant to the Washington State Environmental Policy Act (SEPA). The Planned Action Ordinance is part of the \$400,000 grant awarded by the Washington State Department of Commerce (Commerce) Advanced Planning Grant Program. The Ordinance must be adopted in order to complete the deliverable portion of the Grant Program funds.

Background

In 2015, Commerce implemented a temporary grant program for State Fiscal Year 2015 with \$1.2 million dollars available to fund Advanced Planning projects through a SEPA Planned Action. By late 2014, approximately \$900,000 dollars were still available. The Port of Moses Lake approached the City of Moses Lake and Grant County to submit a joint grant application to develop a Planned Action study area of Port property and private property. The intent of the Planned Action was to develop the up-front environmental impact analysis for future development in the study area.

Fiscal and Policy Implications

The Commerce grant requires deliverables, which includes an Ordinance by the local agency establishing the Grant County International Employment Center.

Options

<i>Option</i>	<i>Results</i>
<ul style="list-style-type: none"><i>Adopt Ordinance</i>	<i>Compliance with Commerce grant and close out of deliverables</i>
<ul style="list-style-type: none"><i>Take no action.</i>	<i>Non-Compliance with Commerce grant deliverables</i>

Staff Recommendation

Staff recommends the Ordinance be adopted as presented

Attachments

A.	September 4, 2014 Port of Moses Lake Letter
B.	Advanced Planning Grant Program Fact Sheet

Legal Review

The following documents are attached and subject to legal review:

Type of Document	Title of Document	Date Reviewed by Legal Counsel
<ul style="list-style-type: none">Ordinance	Planned Action	Under Review

ORDINANCE NO.

AN ORDINANCE ESTABLISHING A PLANNED ACTION FOR THE GRANT COUNTY INTERNATIONAL AIRPORT (GCIA) EMPLOYMENT CENTER, PURSUANT TO THE STATE ENVIRONMENTAL POLICY ACT.

Recitals:

1. The State Environmental Policy Act (SEPA) and implementing rules provide for the integration of environmental review with land use planning and project review through designation of "Planned Actions" by jurisdictions planning under the Growth Management Act (GMA).
2. The City of Moses Lake (City) has adopted a Comprehensive Plan complying with the GMA.
3. The City has adopted development regulations permitting designation of Planned Actions.
4. The GCIA Employment Center has received an Advanced Planning grant from the Washington State Department of Commerce to prepare a Planned Action EIS.
5. The City has established development regulations for properties within the GCIA Employment Center site.
6. The City desires to designate a Planned Action for the GCIA Employment Center area.
7. Designation of a Planned Action expedites the permitting process for subsequent, implementing projects whose impacts have been previously addressed in a Planned Action environmental impact statement (EIS), and thereby encourages desired growth and economic development.
8. The GCIA Employment Center Planned Action EIS identifies impacts and mitigation measures associated with planned development in the GCIA Employment Center Area.
9. The City has adopted development regulations which will help protect the environment and will guide the amount, location, form, and quality of desired development.
10. The GCIA Employment Center area is deemed to be appropriate for designation of a Planned Action.
11. Grant County (County) , as a SEPA lead agency, provided public comment opportunities through an EIS scoping period in February and March 2015, and for the GCIA Employment Center Draft EIS during June and July 2015.

THE CITY COUNCIL OF THE CITY OF MOSES LAKE, WASHINGTON ORDAINS AS FOLLOWS:

Section 1. Recitals: The recitals set forth above are incorporated herein by reference.

Section 2. Purpose: The City Council declares that the purpose of this ordinance is to:

- A. Combine environmental analysis, land use plans, development regulations, City codes and ordinances together with the mitigation measures in the GCIA Employment Center EIS to mitigate environmental impacts and process planned action development application in the GCIA Employment Center area.
- B. Designate the GCIA Employment Center as a Planned Action for purposes of environmental review and permitting of subsequent, implementing projects pursuant to the SEPA, RCW43.21C.031.
- C. Establish criteria and procedures, consistent with state law that will determine whether subsequent, implementing projects qualify as Planned Actions.

- D. Provide the public with information about Planned Actions and how the City and County will process applications for implementing projects within the Planned Action area.
- E. Streamline and expedite the land use review and approval process for qualifying projects by relying on the EIS completed for the Planned Action
- F. Apply the City's development regulations together with the mitigation measures described in the Planned Action EIS and this ordinance to address the impacts of future development contemplated by the Planned Action.

Section 3. Findings: The City Council finds as follows:

- A. The City is subject to the requirements of the Growth Management Act RCW 36.70A, and portions of the GCIA Employment Center site located in the City and County are within an Urban Growth Area.
- B. The City has adopted a Comprehensive Plan complying with the GMA which addresses a portion of the GCIA Employment Center site.
- C. A portion of the approximately 1,258-acre Planned Action area is location within Grant County, and encompasses an area smaller than the Grant County limits.
- D. An EIS has been prepared for the Planned Action area, and the City Council finds that the EIS adequately identifies and addresses the probable significant environmental impacts associated with the types of land uses and amount of development planned to occur in the designated Planned Action area.
- E. The mitigation measures identified in the Planned Action EIS and attached to this ordinance as Exhibit B, incorporated herein by reference, together with adopted City and County development regulations, will adequately mitigate significant impacts from development within the Planned Action area.
- F. The Planned Action EIS identifies the location, type and amount of development that is contemplated by the Planned Action.
- G. Essential public facilities defined in RCW47.06.140 are excluded from the Planned Action and are not eligible for review or permitting as Planned Actions.
- H. Future projects that are implemented consistent with the Planned Action will protect the environment, benefit the public and enhance economic development.
- I. The County has provided several opportunities for meaningful public involvement in the proposed Planned Action, has considered all comments received, and, as appropriate, has modified the proposal or mitigation measures in response to comments.
- J. Public services and facilities are adequate to serve the proposed Planned Action, with implementation of mitigation measures identified in the EIS.

Section 4. Procedures and Criteria for Evaluating and Determining Projects as Planned Actions:

- A. Planned Action Area: The Planned Action designation shall apply to the area shown in Exhibit A, incorporated herein by reference.
- B. Environmental Document: A Planned Action determination for a site-specific project application shall be based on the environmental analysis contained in the Draft EIS issued on June 26, 2015, and the Final EIS issued December 2015. The Draft and Final EISs shall comprise the Planned Action EIS for the Planned Action area. The mitigation measures contained in Exhibit B are based upon the

findings of the Planned Action EIS and shall, along with City and County regulations, provide the framework that the City and County will use to impose appropriate conditions on qualifying Planned Action projects.

- C. Planned Action Designated: Land uses and activities described in the Planned Action EIS, subject to the thresholds described in subsection 4.D and the mitigation measures contained in Exhibit B, are designated Planned Actions or Planned Action Projects pursuant to RCW 43.21C.031. A development application for a site-specific Planned Action project located within the Planned Action area shall be designated as a Planned Action if it completed the modified SEPA Checklist in Exhibit C, and meets the criteria set forth in subsection 4.D of this ordinance and applicable laws, codes, development regulations and standards of the City and County.
- D. Planned Action Thresholds: The following thresholds shall be used to determine if a site-specific development proposed within the GCIA Employment Center site is contemplated by the Planned Action and has had its environmental impacts adequately evaluated in the Planned Action EIS:

1. Qualifying Land Use: The following general categories/types of land uses which are permitted in zoning classifications applicable to the GCIA Employment Center site, and subject to any limitations in size contained in the applicable zoning districts, are considered Planned Actions; anticipated land uses are further identified below:

- a. Heavy industrial and manufacturing uses
- b. Light industrial and technology uses
- c. Aviation development, revenue support uses and airfield operations
- d. Public
- e. Infrastructure and utilities, such as roadways, water, wastewater and stormwater, which are also Planned Actions.

Individual land uses considered to be Planned Actions shall include those uses specifically listed in development regulations applicable to the zoning classifications applied to properties within the Planned Action Area.

2. Development/Employee Thresholds

- a. The following total amounts of various new land uses and employees are contemplated by the Planned Action at build-out:

Land Use	Total Development Amount
Heavy Industrial ¹	Up to 7,290,967 sq. ft.
Aviation Development ²	Up to 2,245,460 sq. ft.
Revenue Support ²	Up to 274,494 sq. ft.
Employees	Up to 19,010

¹Includes uses permitted in the City of Moses Lake Heavy Industrial (HI) zoning classification described in MLMC Title 18, and the Grant County Urban Heavy Industrial (UHI) zoning described in the GCC Chapter 23.

²Includes uses permitted in the Grant County International Airport Aviation Development and Revenue Support classifications described in the GCIA Master Plan.

- b. If future development proposals at the GCIA Employment Center Planned Action Area exceed the development thresholds specified in this ordinance, further environmental review may be required pursuant to WAC 197-11-172. Furthermore, if proposed development would alter the assumptions and analysis in the Planned Action EIS, further environmental review may be required.

3. Transportation:

- a. Trip Ranges & Thresholds: The total number of new trips anticipated in the Planned Action area and reviewed in the EIS is as follows:

Total Trips	Up to 40,500
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Uses or activities that would exceed these maximum trip levels will require additional SEPA review.

- b. Concurrency: The determination of transportation impacts shall be based on the Moses Lake Municipal Code and the County's concurrency management program contained in the Grant County Code (GCC 25.20).
- c. Traffic Impact Mitigation: In order to mitigate transportation-related impacts, all Planned Action projects shall be responsible for a proportional share of off-site improvements for local streets and roads listed in Exhibit B unless a separate mitigation funding agreement has been executed by the affected agencies. A proposed project's proportional share shall be determined based on a traffic generation study, included with the Planned Action checklist required by Section GI of this ordinance. The study shall consider the type, intensity and location of the proposal, and its proportional demand for identified local traffic improvements.
- d. Director Discretion: The City of Moses Lake Community Development Director and Grant County Planning Director shall have discretion to determine incremental and total trip generation, consistent with the Institute of Traffic Engineers (ITE) Trip Generation Manual (latest edition) or an alternative manual accepted by the County Engineer at his or her sole discretion, for each project permit application proposed under this Planned Action.

5. Other Criteria:

- 6. Elements of the Environment and Degree of Impacts: A proposed project that would result in a significant change in the type or degree of impacts to any of the elements of the environment analyzed in the Planned Action EIS shall not qualify as a Planned Action.
- 7. Changed Conditions: Should environmental conditions change significantly from those analyzed in the Planned Action EIS, the City's and County's SEPA Responsible Official may determine that the Planned Action designation is no longer applicable until supplemental environmental review is conducted.

E. Planned Action Review Criteria:

- 1. The City's and County's SEPA Responsible Official may designate as "Planned Actions", pursuant to RCW 43.21C.030, applications that meet all of the following conditions:

- a. The proposal is located within the Planned Action area identified in Exhibit A of this ordinance.
 - b. The proposed uses and activities are consistent with those described in the Planned Action EIS and Section 4.D of this ordinance.
 - c. The proposal is within the Planned Action thresholds and other criteria of Section 4.D of this ordinance.
 - d. The proposal is consistent with the City of Moses Lake Comprehensive Plan and Grant County Comprehensive Plan.
 - e. The proposal's significant adverse environmental impacts have been identified in the Planned Action EIS.
 - f. The proposal's significant impacts have been mitigated by application of the measures identified in Exhibit B, this ordinance and other applicable City and County regulations, together with any modifications or variances or special permits that may be required.
 - g. The proposal complies with all applicable local, state and/or federal laws and regulations, and the Responsible Official determines that these constitute adequate mitigation.
 - h. The proposal is not an essential public facility as defined by RCW 36.70A.200(1), unless the essential public facility is accessory to or part of a development that is designated as a Planned Action under this ordinance.
2. The City and or County shall base its decision on review of a SEPA checklist, or an alternative form authorized by state law, and review of the application and supporting documentation.
 3. A proposal that meets the criteria of this section shall be considered to qualify and be designated as a Planned Action, consistent with the requirements of RCW 43.21C.030, WAC 197-11-164 et seq, and this ordinance.

F. Effect of Planned Action:

1. Designation as a Planned Action project means that a qualifying proposal has been reviewed in accordance with this ordinance and found to be consistent with its development parameters and thresholds, and with the environmental analysis contained in the Planned Action EIS.
2. Upon determination by the City's and County's SEPA Responsible Official that the proposal meets the criteria of Section 4.D and qualifies as a Planned Action, the proposal shall not require a SEPA threshold determination, preparation of an EIS, or be subject to further review pursuant to SEPA.

G. Planned Action Permit Process: Applications for Planned Actions shall be reviewed pursuant to the following process:

1. Development applications shall meet all applicable requirements of the Moses Lake Municipal Code and Grant County Unified Development Code (GCC). Applications for Planned Actions shall be made on forms provided by the City and County and shall include a SEPA checklist, or an approved Planned Action checklist.

2. The City of Moses Lake Community Development Director and County's Planning Director or designee shall determine whether the application is complete as provided in GCC25.04.130 - 25.04.160.
3. If the application is for a project within the Planned Action Area defined in Exhibit A, the application will be reviewed to determine if it is consistent with the criteria of this ordinance and thereby qualifies as a Planned Action project.
 - a. The SEPA Responsible Official shall notify the applicant of his/her decision. Notice of this determination shall also be mailed or otherwise verifiably delivered to federally recognized tribal governments and to agencies with jurisdiction over the Planned Action project pursuant to Chapter 1, Laws of 2012 (Engrossed Substitute Senate Bill [ESSB] 6406).
 - b. If the project is determined to qualify as a Planned Action, it shall proceed in accordance with the applicable permit review procedures specified in GCC 25.04, except that no SEPA threshold determination, EIS or additional SEPA review shall be required.
 - c. Notice of the application for a Planned Action project shall be pursuant to GCC 25.04.190-25.04.240.
4. If notice is required for the underlying permit, the notice shall state that the project has qualified as a Planned Action. If notice is not otherwise required for the underlying permit, no special notice is required by this ordinance.
5. Development Agreement: To provide additional certainty about applicable requirements, the City or County or an applicant may request consideration and execution of a development agreement for a Planned Action project. The development agreement may address review procedures applicable to a Planned Action project, permitted uses, mitigation measures, payment of impact fees or provision of improvements through other methods, design standards, phasing, vesting of development rights or any other topic that may properly be considered in a development agreement consistent with RCW 36.70B.170 et seq.
6. If a project is determined to not qualify as a Planned Action, the SEPA Responsible Official shall so notify the applicant and prescribe a SEPA review procedure consistent with the City's or County's SEPA regulations and the requirements of state law. The notice shall describe the elements of the application that result in failure to qualify as a Planned Action.
7. Projects that fail to qualify as Planned Actions may incorporate or otherwise use relevant elements of the Planned Action EIS, as well as other relevant SEPA documents, to meet their SEPA requirements. The SEPA Responsible Official may limit the scope of SEPA review for the non-qualifying project to those issues and environmental impacts not previously addressed in the Planned Action EIS.

Section 5. Monitoring and Review:

- A. The City and County should monitor the progress of development in the designated Planned Action area as deemed appropriate to ensure that it is consistent with the assumptions of this ordinance and the Planned Action EIS regarding the type and amount of development and associated impacts, and with the mitigation measures and improvements planned for the GCIA Employment Center Planned Action Area.
- B. This Planned Action Ordinance should be reviewed by the SEPA Responsible Official no later than five (5) years from its effective date. The review shall determine the continuing relevance of the Planned Action assumptions and findings with respect to environmental conditions in the Planned

Action area, the impacts of development, and required mitigation measures. Based upon this review, the City and County may propose amendments to this ordinance or may supplement or revise the Planned Action EIS, as appropriate.

- C. When Planned Action monitoring indicates that development proposals that generate a cumulative of about 12,000 daily trips have been submitted, the City and County will begin work towards developing a memorandum of understanding (MOU) in cooperation with the Washington State Department of Transportation to address identified impacts to state transportation facilities. The MOU may address timing, design and funding of state facilities, and/or such other topics as the parties may determine.

Section 6. Conflict: In the event of a conflict between this ordinance or any mitigation measure imposed thereto, and any ordinance or regulation of the City and County, the provisions of this ordinance shall control EXCEPT that the provision of any International Code shall supersede.

Section 7. Severability: If one or more sections, subsections or sentences of this ordinance are held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this ordinance and shall remain in full force and effect.

Section 8. This ordinance shall take effect and be in force five (5) days after its passage and publication of its summary as provided by law.

Adopted by the City Council and signed by its Mayor on April 26, 2016.

Todd Voth, Mayor

ATTEST:

W. Robert Taylor, Finance Director

APPROVED AS TO FORM:

Katherine L. Kenison, City Attorney



GRANT COUNTY INTERNATIONAL AIRPORT
Foreign Trade Zone #203

7810 Andrews St. N.E., Suite 200
Moses Lake, WA, USA 98837-3204

PHONE 509-762-5363

FAX 509-762-2713

E-MAIL info@portofmoseslake.com

WEB SITE www.portofmoseslake.com

September 4, 2014

TO: Moses Lake City Council
Joseph K. Gavinski – City Manager
Gilbert Alvarado – Community Development Director

FROM: Patrick Jones – Port of Moses Lake

RE: Advanced Planning Grant Program

There is an opportunity to obtain State funding for a planned action analysis of the Port's aviation and industrial area. This analysis would support aircraft and aviation-related manufacturing development.

These funds are available through the end of the State's biennium. This advanced planning action will provide an environmental analysis during this study rather than at a project permit review stage, streamlining and expediting the land use permit process. The Port believes that completing this analysis would benefit the community by facilitating private investment in the study area. The community would be better positioned to attract new businesses in the aerospace industry.

Based on the benefits associated with a planned action analysis, the Port of Moses Lake would like to request the City's support for a grant application to complete this analysis.

Thank you very much for your consideration.

"Your Partner For Progress"

Commissioners: MICHAEL B. CONLEY – DAVID "KENT" JONES – STROUD W. KUNKLE • Executive Director: PATRICK JONES

Advanced Planning Grant Program

WHAT:

A temporary grant program for State Fiscal Year 2015 that funds:

"... the preparing of an environmental analysis that advances environmental permitting activities in and around current and future large manufacturing sites for aerospace and other key economic growth centers."

Examples of Eligible and *Ineligible* activities:

- | | | |
|-------------------------|-------------------------|--------------------------|
| • Traffic studies | • Executive Order 05-05 | • No feasibility studies |
| • Stormwater studies | • Shoreline studies | • No marketing plans |
| • Environmental impacts | • Wetlands mitigation | • No marketing studies |
| • Section 106 | • Etc. | • Etc. |

WHEN:

JULY 1, 2014: Grant recipients can be reimbursed for eligible expenses *incurred* on or after July 1, 2014.

JUNE 30, 2015: Grant recipients can be reimbursed for eligible expenses incurred up to or before June 30, 2015.

- Funds unexpended on July 1, 2015, return to the State General Fund.

WHO:

- Cities and counties are the *only* entities eligible for funding.
- Cities and counties developing large scale manufacturing sites.
- Private entities are ineligible to receive funding.

Grant recipients may work in partnership with other local governments and private entities. However, only the eligible expenses incurred by the grant recipients may be reimbursed under this grant program.

FUNDS:

\$1,190,000 is available for this program starting July 1, 2014.

- There is no minimum grant amount.
- There is no maximum grant amount.
- Eligible costs are available for *reimbursement*.

ACCESS:

- Sector Lead (SL) and/or Business Services Assistant Director identify entities with projects benefiting from this funding.
- SL coordinates proposed project with program staff (PS).
- PS vets project for threshold and areas of potential concern (e.g., Growth management, community interest, etc.):
 - Drafts funding recommendation documents/supporting material packet.
 - Drafts contract based on funding recommendation.
- SL and Assistant Director (AD) make a funding recommendation to the Director.
- Director takes action.
- SL delivers decision and funding package to PS.
- PS releases contract proposal or decline notice as appropriate.

Sector
Lead /
BSD-AD

Program
Staff
(Ann Campbell)

Sector Lead &
LGID - AD
(Kendee
Yemaguchi)

Director of
Commerce

Sector
Lead

Program
Staff
(Ann Campbell)

Grant
Recipient

AUTHORIZING STATUTE:

Engrossed House Bill 2088, Chapter 1, Laws of 2013, Section 2:

NEW SECTION. **Sec. 2.** A new section is added to 2013 2nd sp.s. c4 (uncodified) to read as follows:

FOR THE DEPARTMENT OF COMMERCE

General Fund--State Appropriation (FY 2014) \$750,000

General Fund--State Appropriation (FY 2015) \$1,250,000

TOTAL APPROPRIATION \$2,000,000

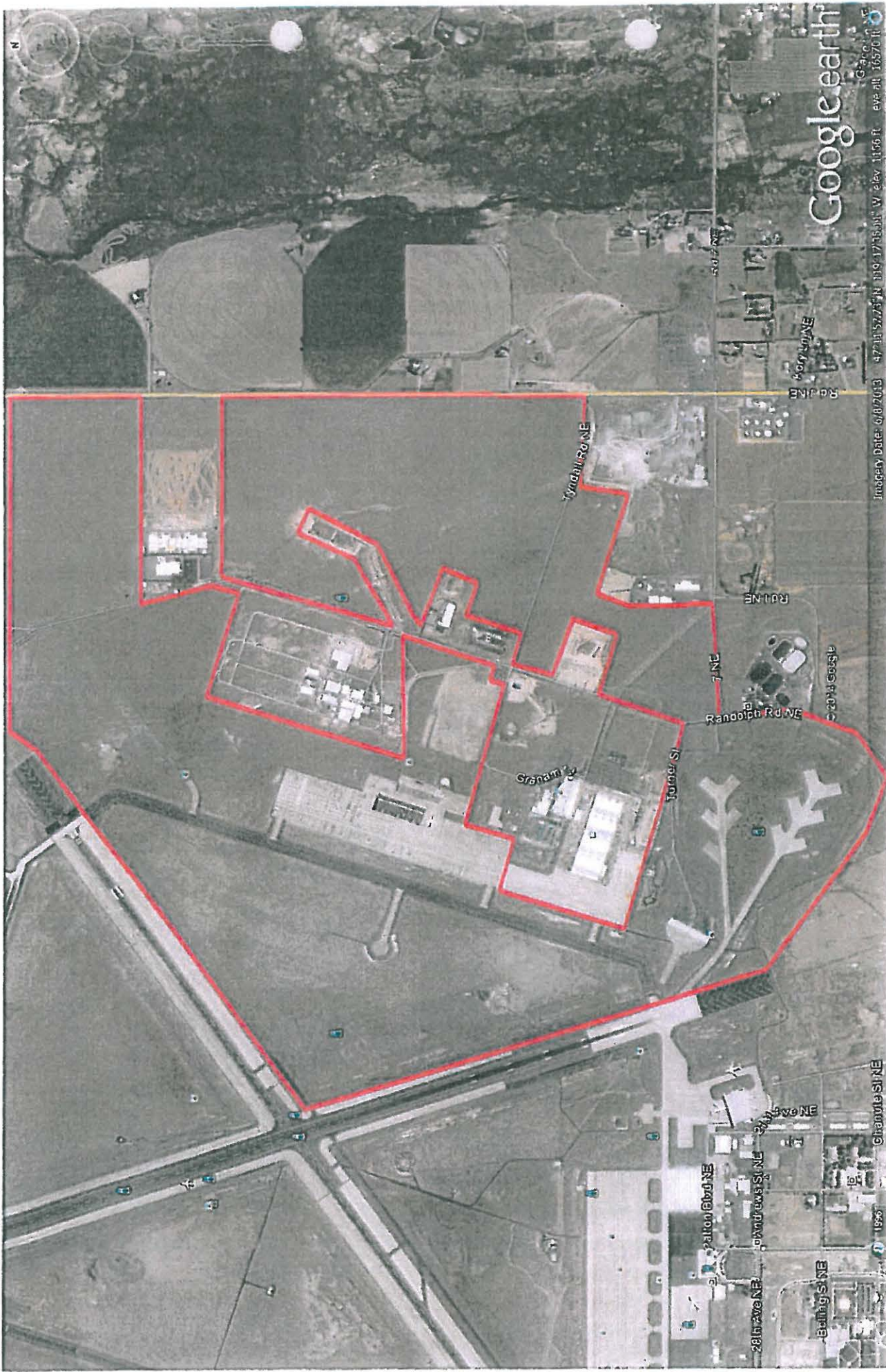
The appropriations in this section are subject to the following conditions and limitations: The appropriations in this section are provided solely for the department of commerce local government and infrastructure division to provide grants to local governments to assist a county or city in paying for the cost of preparing an environmental analysis that advances environmental permitting activities in and around current and future large manufacturing sites for aerospace and other key economic growth centers.

ELIGIBLE PROJECT EXAMPLES:

- Snohomish County (Spring 2014 \$400,000 grant):
Environmental Permitting for Paine Field Business Park
Project will gather information necessary to design maximum capacity site development, produce preliminary site layout/capacity figure, and prepare draft Joint Aquatic Resource Permit Application for submittal to the US Army Corps of Engineers, and document county and city advance mitigation responsibilities.
RESULT: Paine Field will be ideally situated to take timely advantage of economic development opportunities as they arise.
- Spokane WA (Spring 2014 - \$350,000 grant):
Aerospace Pre-Environmental Permitting
Project will build on work already done by the City of Spokane and its partners to establish the West Plains area as a future large manufacturing site for aerospace and other key economic growth centers.

Examples of large scale manufacturing that have moved in once the advanced planning process is complete are:

- ~ SGL Automotive Carbon Fibers – *manufactures the carbon fiber materials for use in BMW automobiles.*
- ~ Saint-Gobain Performance Plastics – *manufactures customized thermo-formed and composite parts for commercial aircraft, rail, and communication industries.*



Google Earth

Imagery Date: 6/8/2013 47°11'52.73"N 109°17'45.94"W elev 1156 ft eye alt 16570 ft

Turner St

Randolph Rd NE

Palton Blvd NE

28th Ave NE

Andrews St NE

Belling St NE

Chenute St NE

7th St

Rd 101 NE

520th Ave NE



CITY OF MOSES LAKE
STAFF REPORT

To: John Williams, City Manager
From: Brett Bastian, Acting Fire Chief
Date: April 12, 2016
Proceeding Type: MOTION
Subject: Resolution—Increase Ambulance Utility Fee by CPI

Legislative History:

- | | |
|------------------------|----------------|
| • First Presentation: | April 12, 2016 |
| • Second presentation: | |
| • Action: | Motion |
-

Staff Report Summary

Attached is a proposed resolution to increase the Ambulance Utility Fee by 1.8% beginning May 5, 2016. The rate increase is based on a CPI change for the period ending December 31, 2015 with rounding according to our ordinance.

Background

The rate indexing is established by Ordinance No. 2026 (2001) and Ordinance No. 2561 (2010), and is addressed in Moses Lake Municipal Code 2.30.050(B). Rate indexing was established to incrementally increase fees consistent with the CPI increase.

Fiscal and Policy Implications

Passing this resolution will allow an increase in the Ambulance Utility Fee which will help sustain the fund balance and help maintain the integrity of the utility for emergency repairs or expenditures.

Options

<i>Option</i>	<i>Results</i>
<ul style="list-style-type: none">• <i>Pass resolution as presented</i>	Action would allow for revenue to increase and help sustain the utility.
<ul style="list-style-type: none">• <i>Take no action.</i>	The rates would remain at their current level.

Staff Recommendation

Staff recommends that City Council move forward with passage of the resolution as presented.

Attachments

A.	Resolution No. 3603
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Legal Review

The following documents are attached and subject to legal review:

Type of Document	Title of Document	Date Reviewed by Legal Counsel
<ul style="list-style-type: none">• Resolution	Ambulance Utility Fee Rate	<i>Katherine Kenison, City Attorney</i> 3-21-2016

RESOLUTION NO. 3603

A RESOLUTION ESTABLISHING AMBULANCE SERVICE UTILITY RATES

RECITALS:

1. The City Council by ordinance has previously established, pursuant to RCW Chapter 35.21, an Ambulance Service Utility for the City.
2. The City Council, by ordinance, has specified that the Ambulance Service Utility Rate shall be revised annually in an amount equal to the increase in the All Urban Consumers, All West City Average, December to December, Consumer Price Index (CPI).
3. The CPI Index for the All Urban Consumers, All West City Average, December to December, Consumer Price Index for the period ending December 31, 2015 was 1.8%.
4. The increase based on the CPI is calculated at \$0.20 rounded to the closest \$0.05 increment specified in ordinance 2561.

RESOLVED:

1. The following rates are established by the Moses Lake City Council for the Ambulance Service Utility of the City and shall become effective May 5, 2016.:

All Classes of users: \$11.30 per utility account to be charged and collected through the water/sewer utility billings.

Adopted by the City Council on April 12, 2016.

ATTEST:

Todd Voth, Mayor

W. Robert Taylor, Finance Director



CITY OF MOSES LAKE
STAFF REPORT

To: John Williams, City Manager
From: Dave Ruffin, Chief of Police
Date: April 12, 2016
Proceeding Type: MOTION
Subject: Resolution – Authorizing the Execution of an Equipment Lease Agreement

Legislative History:

• First Presentation:	April 12, 2016
• Second presentation:	
• Action:	Motion

Staff Report Summary

Staff is requesting council consider a resolution for the execution of an equipment lease agreement. The lease is for mobile data terminals which would be utilized in the patrol vehicles.

Background

The Moses Lake Police Department has used mobile data terminals for many years. The MDTs are essentially rugged computers that are mounted in the cars. The current units are no longer serviceable and need to be replaced. The MDTs help the officers to be safer and more efficient in their duties. It allows them to have instant access to information about people and vehicles they come in contact with. In the past, we have purchased the MDTs outright, however, this has become cost prohibitive and must be repeated approximately every 4-5 years.

Fiscal and Policy Implications

A single MDT cost approximately \$5,500 dollars. To replace all of units in a single year will cost approximately \$70,000 dollars. Even to replace 2 units per year at \$11,000 would not solve the problem; as you will have to continually repeat this action. The lease option ensures that you have new working units in all of the vehicles, and the lease will automatically replace units that become defective or are unserviceable.

Options

<i>Option</i>	<i>Results</i>
<ul style="list-style-type: none"><i>Accept the resolution so that the lease can be exercised.</i>	This would allow the department to replace the old MDTs in the patrol vehicles.
<ul style="list-style-type: none"><i>Take no action.</i>	Discontinue using mobile data terminals or purchase the MDTs (Greater cost to the city).

Staff Recommendation

Passing the resolution so that the department can exercise the lease option.

Attachments

A.	Resolution No. 3604
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Legal Review

The following documents are attached and subject to legal review:

Type of Document	Title of Document	Date Reviewed by Legal Counsel
<ul style="list-style-type: none">Contract and Resolution		04/05/16 – City Attorney, Katherine Kenison

RESOLUTION NO. 3604

A RESOLUTION AUTHORIZING THE EXECUTION OF AN EQUIPMENT LEASE
AGREEMENT WITH BEVENCO NATIONAL EQUIPMENT LEASING AND FINANCE

RECITALS:

1. WHEREAS, the governing body of Lessee has determined that a true and very real need exists for the acquisition of the Equipment described in the Equipment Lease Agreement presented to this meeting; and
2. WHEREAS, the governing body of Lessee has taken the necessary steps, including any legal bidding requirements, under applicable law to arrange for the acquisition of such Equipment.

RESOLVED:

1. By the governing body of Lessee that the terms of said Equipment Lease Agreement are in the best interest of Lessee for the acquisition of such Equipment, and the governing body of Lessee designates and confirms that the persons indicated below are authorized to execute and deliver the Equipment Lease Agreement and any related documents necessary to the consummation of the transactions contemplated by the Equipment Lease Agreement.
2. That pursuant to Section 265 (b) 3 (D) of the Internal Revenue Code, as amended, the governing body of Lessee hereby designates this Equipment Lease Agreement as comprising a portion of the \$10 million in aggregate issues designated as "qualified tax-exempt obligations" eligible for the exception to the general rule of the Code which provides for a total disallowance of a deduction for interest expense allocable to the carrying of tax-exempt obligations. The governing body of the Lessee further certifies that it does not reasonably contemplate issuing more than \$10,000,000 of "qualified tax-exempt obligations," as defined in the Code, during the current fiscal year.
3. That Dave Ruffin, Chief of Police, is authorized to execute the Equipment Lease Agreement.
4. The undersigned further certifies that the above resolution has not been repealed or amended and remains in full force and effect and further certifies that the above and foregoing Equipment Lease Agreement is the same as presented at said meeting of the governing body of Lessee.

Adopted by the City Council on April 12, 2016.

ATTEST:

Todd Voth, Mayor

W. Robert Taylor, Finance Director



CITY OF MOSES LAKE
STAFF REPORT

To: John Williams, City Manager
From: Gary Harer
Date: April 12, 2016
Proceeding Type: Motion
Subject: Seal Coat Project - 2016 - Consideration of Bids

Legislative History:

- | | |
|------------------------|----------------|
| • First Presentation: | April 12, 2016 |
| • Second presentation: | |
| • Action: | Motion |

Staff Report Summary

Staff opened bids for the Seal Coat Project on April 6, 2016. The project includes chip sealing approximately Pioneer Way from Clover Drive to West Broadway, Wheeler Road from Pioneer Way Avenue to Road N, Division Street from north of the roundabout to Fourth Avenue. Also includes skin patch the wheel ruts that are more than 1" deep on portions of Pioneer Way and Wheeler Road.

Background

The last two chip seal projects were in 2011 and 2013.

Fiscal and Policy Implications

The following two bids were received:

<u>Bidder</u>	<u>Schedule A</u>	<u>Additive 1</u>	<u>Additive 2</u>	<u>Grand Total</u>
Central Washington Asphalt	\$745,505	\$44,330	\$61,088	\$850,923
Granite Construction Co.	\$759,000	\$50,285	\$59,590	\$868,275
Engineer's Estimate	\$710,050	\$39,775	\$51,450	\$801,275

The 2016 budget included a total of \$800,000, including engineering, for this project.

Options

<i>Option</i>	<i>Results</i>
• <i>Award the Grand total</i>	The project cost will be over budget
• <i>Award Schedule A (Base bid)</i>	The project cost will not exceed the budgeted amount of \$800,000
• <i>Not award the bid</i>	Project will not be completed

Staff Recommendation

Staff recommends awarding Schedule A to Central Washington Asphalt in the amount of \$745,505.

Attachments

A.	Bid summary
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Legal Review

The following documents are attached and subject to legal review:

Type of Document	Title of Document	Date Reviewed by Legal Counsel
• None		

SEAL COAT PROJECT - 2016 BID SUMMARY

04/06/16

JK

Contract #A-782

Schedule A: Street List By Type

3/8" Chip Seal: 193,200 SY (Pioneer Way, Wheeler Rd., Division St., & Riviera Dr.)

5/8" Chip Seal Wheel Path Repair: 60,200 SY (Pioneer Way and Wheeler Rd.)

Fog Seal: 231,100 SY (Pioneer Way, Wheeler Rd., Division St., & Riviera Ave.)

ITEM	DESCRIPTION	APPROX. QUANTITY	UNIT	Engineer's Estimate		Central Washington Asphalt, Inc. Moses Lake		Granite Construction Company Moses Lake	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
1	Mobilization	1	LS	\$70,000.00	\$70,000.00	\$70,000.00	\$70,000.00	\$55,000.00	\$55,000.00
2	Traffic Control	1	LS	\$80,000.00	\$80,000.00	\$110,000.00	\$110,000.00	\$135,000.00	\$135,000.00
3	Flushing	120	M Gallon	\$100.00	\$12,000.00	\$80.00	\$9,600.00	\$90.00	\$10,800.00
4	Emulsified Asphalt, CRS-2P	410	TON	\$600.00	\$246,000.00	\$525.00	\$215,250.00	\$650.00	\$266,500.00
5	Asphalt for Fog Seal	60	TON	\$750.00	\$45,000.00	\$650.00	\$39,000.00	\$575.00	\$34,500.00
6	Furnishing and Placing Crushed (5/8-Inch - No. 4)	1,100	TON	\$40.00	\$44,000.00	\$50.00	\$55,000.00	\$45.00	\$49,500.00
7	Furnishing and Placing Crushed (3/8-Inch - No. 10)	2,600	TON	\$40.00	\$104,000.00	\$66.00	\$171,600.00	\$42.00	\$109,200.00
8	Asphalt for Roadway Surface Preparation	150	TON	\$325.00	\$48,750.00	\$170.00	\$25,500.00	\$250.00	\$37,500.00
9	Adjust Monument Case & Cover	2	EA	\$350.00	\$700.00	\$315.00	\$630.00	\$400.00	\$800.00
10	Adjust Valve Box	4	EA	\$350.00	\$1,400.00	\$325.00	\$1,300.00	\$400.00	\$1,600.00
11	Replace and Adjust Valve Box	9	EA	\$550.00	\$4,950.00	\$450.00	\$4,050.00	\$600.00	\$5,400.00
12	Adjust Manhole Frame & Cover	21	EA	\$450.00	\$9,450.00	\$425.00	\$8,925.00	\$500.00	\$10,500.00
13	Replace and Adjust Manhole Frame & Cover	23	EA	\$800.00	\$18,400.00	\$700.00	\$16,100.00	\$900.00	\$20,700.00
14	Monument Assembly	1	EA	\$800.00	\$800.00	\$550.00	\$550.00	\$700.00	\$700.00
15	Plastic Stop Line	500	LF	\$10.00	\$5,000.00	\$8.00	\$4,000.00	\$9.00	\$4,500.00
16	Plastic Crosswalk Line	2,800	SF	\$7.00	\$19,600.00	\$5.00	\$14,000.00	\$6.00	\$16,800.00
Subtotal Schedule A					\$710,050.00		\$745,505.00		\$759,000.00
Sales Tax (0.0%)					\$0.00		\$0.00		\$0.00
Total Schedule A					\$710,050.00		\$745,505.00		\$759,000.00

Additive 1: Street List By Type

3/8" Chip Seal & Fog Seal: 16,900 SY (Olive Ave., Balsam St., Garden Dr., Lasco Ln., & Rd. N NE)

5/8" Chip Seal Wheel Path Repair: 1,500 SY (Rd. N NE)

ITEM	DESCRIPTION	APPROX. QUANTITY	UNIT	Engineer's Estimate		Central Washington Asphalt, Inc. Moses Lake		Granite Construction Company Moses Lake	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
1	Traffic Control	1	LS	\$5,000.00	\$5,000.00	\$7,000.00	\$7,000.00	\$13,000.00	\$13,000.00
2	Flushing	10	M Gallon	\$100.00	\$1,000.00	\$80.00	\$800.00	\$90.00	\$900.00
3	Emulsified Asphalt, CRS-2P	30	TON	\$600.00	\$18,000.00	\$525.00	\$15,750.00	\$650.00	\$19,500.00
4	Asphalt for Fog Seal	5	TON	\$750.00	\$3,750.00	\$650.00	\$3,250.00	\$575.00	\$2,875.00
5	Furnishing and Placing Crushed (5/8-Inch - No. 4)	30	TON	\$40.00	\$1,200.00	\$50.00	\$1,500.00	\$45.00	\$1,350.00
6	Furnishing and Placing Crushed (3/8-Inch - No. 10)	230	TON	\$40.00	\$9,200.00	\$66.00	\$15,180.00	\$42.00	\$9,660.00
7	Asphalt for Roadway Surface Preparation	5	TON	\$325.00	\$1,625.00	\$170.00	\$850.00	\$600.00	\$3,000.00
Subtotal Additive 1					\$39,775.00		\$44,330.00		\$50,285.00
Sales Tax (0.0%)					\$0.00		\$0.00		\$0.00
Total Additive 1					\$39,775.00		\$44,330.00		\$50,285.00

Additive 2: Street List By Type

3/8" Chip Seal & Fog Seal: 27,100 SY (Sunburst Ct., Vista Dr., Village Ave., Sunkist Dr., Crest Dr., and Evelyn Dr.)

ITEM	DESCRIPTION	APPROX. QUANTITY	UNIT	Engineer's Estimate		Central Washington Asphalt, Inc. Moses Lake		Granite Construction Company Moses Lake	
				UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT	UNIT PRICE	AMOUNT
1	Traffic Control	1	LS	\$6,000.00	\$6,000.00	\$10,000.00	\$10,000.00	\$13,000.00	\$13,000.00
2	Flushing	15	M Gallon	\$100.00	\$1,500.00	\$80.00	\$1,200.00	\$90.00	\$1,350.00
3	Emulsified Asphalt, CRS-2P	38	TON	\$600.00	\$22,800.00	\$525.00	\$19,950.00	\$650.00	\$24,700.00
4	Asphalt for Fog Seal	8	TON	\$750.00	\$6,000.00	\$650.00	\$5,200.00	\$575.00	\$4,600.00
5	Furnishing and Placing Crushed (3/8-Inch - No. 10)	370	TON	\$40.00	\$14,800.00	\$66.00	\$24,420.00	\$42.00	\$15,540.00
6	Adjust Monument Case & Cover	1	EA	\$350.00	\$350.00	\$318.00	\$318.00	\$400.00	\$400.00
Subtotal Additive 2					\$51,450.00		\$61,088.00		\$59,590.00
Sales Tax (0.0%)					\$0.00		\$0.00		\$0.00
Total Additive 2					\$51,450.00		\$61,088.00		\$59,590.00

Total Schedule A, Additive 1, and Additive 2	\$801,275.00	\$850,923.00	\$868,875.00
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CITY OF MOSES LAKE STAFF REPORT

To: John Williams, City Manager
From: Gary Harer, Municipal Services Director
Date: April 12, 2016
Proceeding Type: Motion
Subject: Division Street - Lane Reconfiguration

Legislative History:

- | | |
|------------------------|----------------|
| • First Presentation: | April 12, 2016 |
| • Second presentation: | |
| • Action: | Motion |

Staff Report Summary

Staff is requesting to convert the lane configuration on Division Street from north of the roundabout to Sixth Avenue. The conversion would be striping Division Street after it has been seal coated for two travel lanes, two left turn left turn lane, and a bicycle lane and parking lane on each side. The purpose is to reduce traffic accidents, reduce the severity of accidents, and provide a Complete Street that will accommodate motorists, bicyclist and pedestrians.

Background

There have been many well documented studies that have shown that the proposed reconfiguration reduces accidents by 19 to 40%. The Federal Highway Administration has rigorously reviewed and summarized these studies and published their [Road Diet Informational Guide](#), attached. The federal and state agencies encourage agencies to build and convert existing streets to provide multi-model transportation including bike lanes.

Fiscal and Policy Implications

There will be very minimal costs to stripe Division Street with the new configuration once the seal coat is completed since Division Street will be restriped anyway.

Options

<i>Option</i>	<i>Results</i>
<ul style="list-style-type: none">• <i>Approve a motion to allow staff to reconfigure the striping on Division Street</i>	A 19 % to 47% reduction of accidents, reduction of the severity of accidents, improves pedestrian safety by reducing the lanes to cross, improves the safety for bicyclist by providing bike lane, changes Division Street to a Complete Street and helps control speeding traffic.
<ul style="list-style-type: none">• <i>Take no action.</i>	The conditions on Division Street will be status quo and none of the above advantages not be realized.

Staff Recommendation

Staff recommends that Council approve the requested lane reconfiguration.

Attachments

A.	Police Chief letter Staff Report First three chapters of the Road Diet Information Guide, published by the Federal Highway Administration.
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Legal Review

The following documents are attached and subject to legal review:

Type of Document	Title of Document	Date Reviewed by Legal Counsel
<ul style="list-style-type: none">• None		

April 6th, 2016



321 S. Balsam St.
P.O. Box 1579
Moses Lake, WA 98837-0244

Phone: (509) 766-9214

Gary Harer
Municipal Service Director
PO Box 1579
Moses Lake, WA 98837

Gary,

It is my understanding that the Municipal Services Department is considering a lane reduction or road re-channelization for Division Street; from I90 North to the 5th Avenue intersect. I am aware that lane reduction is a common technique used in transportation planning, where the numbers of travel lanes are reduced in order to achieve overall improvements to the travel system. Division is a heavily travelled street that is used by many residents travelling from Montlake and Pelican Point into the downtown area of Moses Lake. The street is also used by many students and parents traveling to Garden Heights Elementary and the High School.

Currently, Division Street contains four lanes of travel. The perpendicular areas surrounding Division are primarily residential, which forces many travelers to execute unprotected left turns onto side streets to go to their residences. On a four-lane street, speeds can vary between lanes, and drivers must slow or change lanes due to slower vehicles (e.g., vehicles stopped in the left lane waiting to make a left turn). Additionally, Division Street has always been an area of concern for speeding vehicles.

I believe that by converting the existing four lane roadway into two through lanes plus a center turn lane we will benefit both drivers and pedestrians alike. With this conversion, drivers' speeds are limited by the speed of the lead vehicle in the through lanes, and through vehicles are separated from left-turning vehicles. It is reasonable to assume that this lane reduction would reduce vehicle speeds and vehicle interactions, which could potentially reduce the number and severity of vehicle-to-vehicle crashes. I also think that this could enhance pedestrian safety by creating fewer lanes of traffic for them to cross.

In closing, I am offering my support for this project. Please contact me if you have any questions regarding my recommendation.

Respectfully submitted,


David L. Ruffin
Chief
Moses Lake Police Department

cc: City Manager

Staff Report

Division Street Request Road Diet

Prepared by Gary Harer, Municipal Services Director

A Road Diet reduces the number of lanes in a street to improve safety and allow additional space for improvements to benefit all users of the street and sidewalks - commonly called Complete Streets.

Existing Conditions

Existing Configuration:	Four Lanes with parking on each side
Classification:	Secondary Arterial
Speed Limit:	35 mph from the south city limits to Seventh Avenue
Average Traffic Count:	9,300 vehicles per day at 400' North of Nelson Road 7,800 vehicles per day 150' at South of Fourth Avenue 5,400 vehicles per day 200' at South of I-90
Bicyclist:	Most bicyclists use the sidewalk, which interferes with pedestrians, instead of in the travel way

Accident History

Last Five Years:	There have been 41 accidents including 18 (44%) that were either left turn - rear ends (9), changing lanes (5), or vehicle/bicycle collisions(4).
Last Three Years:	There have been 20 accidents including 12 (60%) that were either left turn rear ends (5), changing lanes (3), or vehicle/bicycle collisions (4).

Left turn rear end collisions. On four lane streets, rear end collisions are commonly caused by the vehicle following another vehicle that stops or slows down to make a left turn at an intersection or a driveway and the following vehicle is not prepared to stop in time.

Changing Lanes Collisions. On four lane streets, accidents resulting from changing lanes are caused by motorists changing lanes to pass a vehicle to get to their destination faster, passing a vehicle that is stopped or slowed down to make a left or right turn, and to get into the proper lane to make a left or right turn.

Vehicle/bicycle collisions. Bicyclists commonly use the sidewalk to commute if there are not bicycle lanes. Motorists are looking in the travel lanes when entering streets and not necessarily at the sidewalks for bicyclists. The same problem presents itself with pedestrians, however, pedestrians are quicker to react to a car because they are moving slower.

Speeding:

The Police Department has an on going concern with speeding motorists.

Common Crash Types:

Four lane streets have a history for relatively high crash rates as traffic volumes increase and as the inside lane is shared by higher speed through traffic and left turning vehicles. According to the attached report prepared by the Federal Highway Administration (FHWA), four lane streets experience the following types of crashes:

1. Rear end and swipe crashes caused by speed differential between vehicles
2. Sideswipe crashes caused by frequent and sudden lane changing between two through lanes
3. Rear end crashes caused by left turning vehicles stopped in the inside travel lane
4. Left turn crashes caused by mainline left turning motorists feeling pressure to depart the shared through/left lane by following motorists making a poor gap judgment
5. Angle crashes caused by side street traffic crossing four lanes to make a through movement across an intersection, or turning left across two lanes
6. Bicycle crashes due to a lack of available space for bicyclist to ride comfortably
7. Pedestrian crashes due to the high number of lanes for pedestrians to cross with no refuge

Proposed Lane Reconfiguration

Staff is proposing to change the lane configuration on Division Street from the north limits of the roundabout to Sixth Avenue. This would replace the four travel lanes and parking on each side configuration *with* two travel lanes, a two way left turn lane parking and a bicycle lane on each side. This would improve the safety for all users of Division Street including motorists, bicyclists and pedestrians. Furthermore, the reconfiguration will also help control motorist who exceed the speed limit, and will have a two way left turn lane that can be used for emergency vehicles.

The Police Chief and the Fire Chief endorse this revision because it will reduce traffic accidents and the number of speeding motorists, see the attached letter from the Police Chief.

The length of Division Street that is proposed to be reconfigured is 1.6 miles. A reduction of 5 mph equates to about 30 seconds of additional travel time for this section of Division Street.

The FHWA, Washington State Department of Transportation, Safe Routes to School, and Grant County Health District highly recommend Road Diets for existing streets to allow motorists, bicyclist, and pedestrians share of the existing roadway section and to promote multi-modal transportation. This is commonly referred to as "Complete Streets". In 2012 the City Council approved Ordinance 2644 entitled "Complete Streets Program" that states the City encourages healthy, active living, reduction of traffic congestion and fossil fuels and improvement in the safety and quality of life. Furthermore, the City will provide accommodations for bicyclists pedestrian and transit users. The Trail Planning Team has had this project on their list for more than ten years.

This conversion is listed in Table 16A in the Transportation Chapter of the City Comprehensive Plan. It was scheduled for 2017 at a cost of \$40,000. Division Street is in the 2016 Seal Coat Project and will be chip sealed this coming month. There will be very minimal additional cost to paint the new configuration when the Seal Coat Project is completed.

There have many studies across the United States that have concluded that converting four lane streets to three lanes provide a much safer street for all the users. The Federal Highway Administration (FHWA) has incorporated these studies in their attached publication entitled "Road Diet Information Guide - FHWA Safety Program". This publication includes the following information:

Advantages of road diets (converting four traffic lanes to two traffic lanes with a two way left turn lane).

1. An overall crash reduction of 19 to 47 percent.
2. Reduction of rear-end and left-turn crashes through the use of a dedicated left turn lane.
3. Fewer lanes for pedestrians to cross and an opportunity to install pedestrian refuge islands.
4. The opportunity to install bicycle lanes when the cross-section is reallocated.
5. Reduced right angle crashes as side street motorists must cross only three lanes of traffic instead of four.
6. Traffic calming and reduced speed differential, which can decrease the number of crashes and reduce the severity of crashes if they occur.
7. The opportunity to allocate the “leftover” roadway width for other purposes such as bike lanes on-street parking or transit stops.
8. Encouraging a better community focused “Complete Street” environment.
9. Simplifying road scanning and gap selection for motorists (especially older and younger drivers) making left turns from or onto the mainline street.

Problems potentially correctable by a Road Diet

Problem	Rational
Rear end crashes with left turning traffic due to speed discrepancies	Removing stopped vehicles attempting to turn left from the through lane could reduce rear end crashes
Sideswipe crashed due to lane changes	Eliminating the need to change lanes
Left turn crashes due to negative offset left turns from the inside lanes	Eliminating the negative offset between opposing left turn vehicles and increasing available sight distance can reduce left turn crashes
Bicycle and pedestrian crashes	Bicycle lanes separate bicycles from traffic; pedestrians have fewer lanes to cross and can use a refuge area, if provided. Furthermore, more bicyclists will use the bike lanes where motorists will expect to see them
Delays associated with left turning traffic	Separating left turning traffic has been shown to reduce delays at signalized intersections
Side street delays at unsignalized intersections	Side street traffic requires shorter gaps to complete movements due to the consolidation of left turns into one lane
Bicycle operational delay due to a shared lane with vehicle or sidewalk use	Potential for including a bike lane eliminates such lanes
Unattractive aesthetic	Provisions can be made for traversable medians and other treatments.
Vehicle speeds discourage pedestrian activity	Potential for more uniform speed; opportunity to encourage pedestrian activity

Different studies have determined that the average daily traffic capacity for streets with two lanes with a two way left turn lane ranges from 17,500 to 24,000 vehicles per day. The FHWA suggests a maximum of 20,000 vehicles per day before the benefits begin to decline.

Division Street Accidents

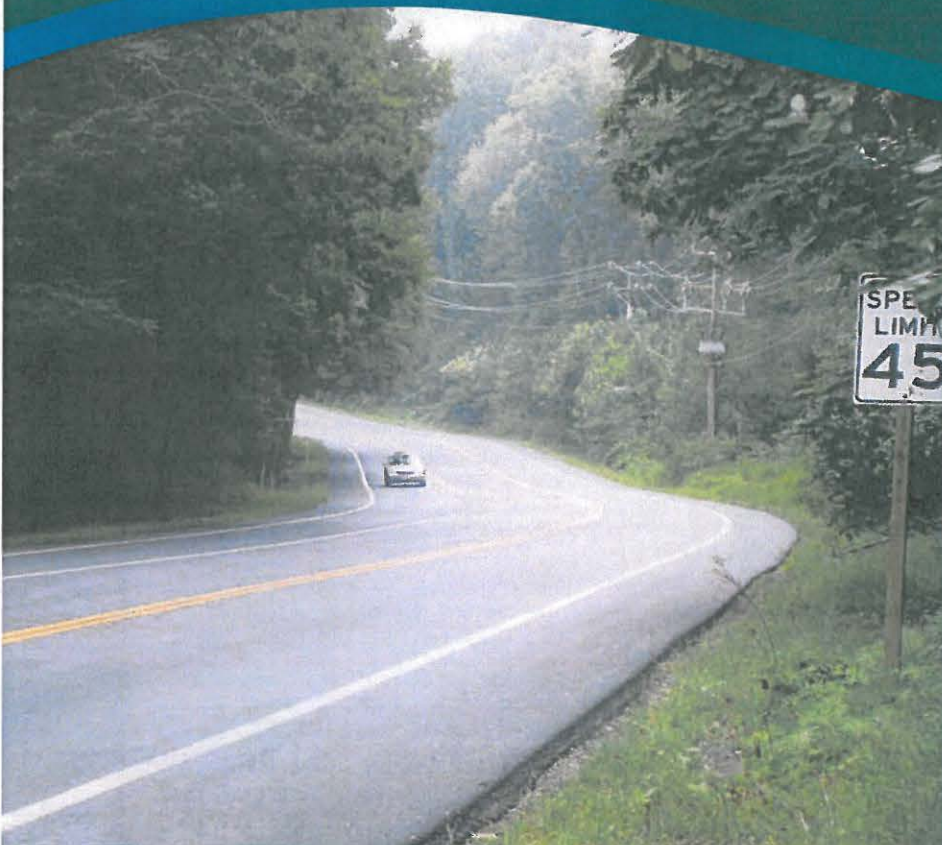
<u>Cause By</u>	<u>Location</u>	<u>Date</u>	
Failed to Yield Right of Way (FTY)	Nelson	03 - 2010	
Left Turn Rear End	Ninth	12 - 2010	
FTY	Nelson	05 - 2010	
FTY	Nelson	03 - 2010	
Parked Car	Eleventh	01 - 2011	
Left Turn Rear End	Jones	05 - 2011	3/12
*Left Turn Rear End	Hill	09 - 2011	25%
Parked Car	Hill	10 - 2011	
Left Turn Rear End	Driveway	12 - 2011	
FTY	Nelson	02 - 2011	
FTY	Hill	03 - 2011	
FTY	Nelson	08 - 2011	
FTY	Nelson	11 - 2012	
FTY	Inglewood	11 - 2012	
Changing Lanes	Eleventh	02 - 2012	
*Head On	Chuckie	05 - 2012	3/9
Single Vehicle on Ice	Yonezawa	11 - 2012	33%
FTY	Hill	04 - 2012	
Changing Lanes	Nelson	04 - 2012	
Hit Bicyclist	Ninth	09 - 2012	
FTY	Inglewood	09 - 2012	
Left Turn Rear End	Driveway	05 - 2013	
Right Turn While in the Inside Lane	Sixth	07 - 2013	3/5
Hit Bicyclist	Chuckie	05 - 2013	60%
Single Car	Hill	08 - 2013	
FTY	Seventh	10 - 2013	
Left Turn Rear End	Driveway	02 - 2014	3/4
Left Turn Rear End	Driveway	03 - 2014	75%
Hit Bicyclist	Driveway	03 - 2014	
3 car collision		11 - 2014	
Parked Car		01 - 2015	
Left Turn Rear End	Driveway	05 - 2105	
FTY	Parking Lane	05 - 2015	
Left Turn Rear End	Eleventh	06 - 2015	5/9
Hit Bicyclist	Seventh	06 - 2015	56%
Wheel Came Off	Hill	08 - 2015	
FTY	Nelson	09 - 2015	
Left Turn Rear End	Sixth	10 - 2015	
Left Turn Rear End	Driveway	12 - 2015	

Single Car	Jones	01 - 2016	1/2
Left Turn Rear End	Seventh	01 - 2016	50%

Last 5 years			18/41
		44%	

Last 3 years is			12/20
		60%	

Road Diet Informational Guide



FHWA Safety Program



U.S. Department of Transportation
Federal Highway Administration



Safe Roads for a Safer Future
Investment in roadway safety saves lives

www.safety.fhwa.dot.gov

1. Report No. FHWA-SA-14-028	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Road Diet Informational Guide		5. Report Date November 2014	
		6. Performing Organization Code	
7. Author(s) Keith Knapp, Brian Chandler, Jennifer Atkinson, Thomas Welch, Heather Rigdon, Richard Retting, Stacey Meekins, Eric Widstrand, and R.J. Porter.		8. Performing Organization Report No.	
9. Performing Organization Name and Address Leidos 11251 Roger Bacon Drive Reston, VA 20190 Subconsultants: Iowa State University, Sam Schwartz Engineering, University of Utah		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. Contract No. DTFH61-10-D-00024, Task Order No. T-12-004	
12. Sponsoring Agency Name and Address Federal Highway Administration Office of Safety 1200 New Jersey Avenue SE Washington, DC 20590		13. Type of Report and Period Covered Informational Guide Book August 2011 to July 2014	
		14. Sponsoring Agency Code HSA	
15. Supplementary Notes Rebecca Crowe (rebecca.crowe@dot.gov), Office of Safety Technologies (http://safety.fhwa.dot.gov/), served as the Technical Manager for the Federal Highway Administration (FHWA). The following FHWA staff members contributed as technical working group members, reviewers and/or provided input or feedback to the project at various stages: Peter Eun, David Morena, Tamara Redmond, and Jeff Shaw.			
16. Abstract A classic Road Diet converts an existing four-lane undivided roadway segment to a three-lane segment consisting of two through lanes and a center two-way left turn lane (TWLTL). A Road Diet improves safety by including a protected left-turn lane for mid-block left-turning motorists, reducing crossing distance for pedestrians, and reducing travel speeds that decrease crash severity. Additionally, the Road Diet provides an opportunity to allocate excess roadway width to other purposes, including bicycle lanes, on-street parking, or transit stops. This Informational Guide includes safety, operational, and quality of life considerations from research and practice, and guides readers through the decision-making process to determine if Road Diets are a good fit for a certain corridor. It also provides design guidance and encourages post-implementation evaluation.			
17. Key Words Road Diet, four-lane, undivided, three-lane, two-way-left-turn-lane, cross section, safety, operations, reconfiguration, queuing.		18. Distribution Statement No restrictions.	
19. Security Clasif. (of this report) Unclassified	20. Security Clasif. (of this page) Unclassified	21. No. of Pages 72	21. Price N/A

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Chicago	Nathan Roseberry, T.Y. Lin International
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Left: Randy Dittberner, Virginia Department of Transportation
Upper Right: City of Seattle
Lower Right: Virginia Department of Transportation

Table of Contents

Executive Summary	1
1 Introduction	3
1.1. What is a Road Diet?	3
1.2 History of Road Diets.....	5
1.2.1 History of Road Diet Installations.....	5
1.2.2 History of Road Diet Safety Evaluations.....	5
1.3 Purpose and Objectives of the Informational Guide	6
1.4 Organization of the Guide	6
2 Why Consider a Road Diet?	7
2.1 Benefits of Road Diets.....	7
2.1.1 Improved Safety.....	7
2.1.2 Operational Benefits	9
2.1.3 Pedestrian and Bicyclist Benefits	9
2.1.4 Livability Benefits	10
2.2 Synergies and Trade-offs.....	10
3 Road Diet Feasibility Determination	13
3.1 Safety Factors.....	13
3.2 Context Sensitive Solutions and Complete Streets.....	14
3.3 Operational Factors.....	15
3.3.1 De Facto Three-Lane Roadway Operation.....	15
3.3.2 Speed.....	15
3.3.3 Level of Service (LOS).....	15
3.3.4 Quality of Service	16
3.3.5 Average Daily Traffic (ADT)	17
3.3.6 Peak Hour and Peak Direction	17
3.3.7 Turning Volumes and Patterns	18
3.3.8 Frequently Stopping and Slow-Moving Vehicles.....	18
3.4 Bicycles, Pedestrians, Transit, and Freight Considerations.....	19
3.4.1 Bicycle Considerations	19
3.4.2 Pedestrian Considerations	20
3.4.3 Transit Considerations	20
3.4.4 Freight Considerations	21

3.5 Other Feasibility Determination Factors.....	22
3.5.1 Right-of-Way Availability and Cost.....	22
3.5.2 Parallel Roadways.....	22
3.5.3 Parallel Parking.....	23
3.5.4 At-Grade Railroad Crossings.....	23
3.5.5 Public Outreach, Public Relations, and Political Considerations	23
3.6 Case Studies: Feasibility Determination Decision-making	24
3.7 Funding Road Diets.....	28
4 Designing a Road Diet	29
4.1 Geometric Design.....	29
4.1.1 Road Function and Context.....	29
4.1.2 Design Controls.....	30
4.1.3 Elements of Design.....	32
4.1.4 Cross Sectional Elements.....	33
4.1.5 Intersection Design.....	37
4.2 Operational Design	40
4.2.1 Cross-Section Allocation.....	40
4.2.2 Crossing Pedestrians.....	41
4.2.3 Intersection Control Changes	41
4.2.4 Pavement Marking and Signing.....	42
4.2.5 Intersection Design Elements.....	42
5 Determining if the Road Diet is Effective.....	45
5.1 Safety Analysis of a Road Diet.....	45
5.1.1 Data Needs.....	45
5.1.2 Observational Before-and-After Studies of Road Diets.....	46
5.1.3 Surrogate Measures of Safety for Road Diets.....	47
5.2 Operational Analysis	48
5.2.1 Analyzing Vehicle Operations.....	48
5.2.2 Non-Motorized Operations.....	49
5.2.3 Tools and Methods to Evaluate Impacts.....	50
6 Conclusion.....	51
Appendix A – Road Diet Safety Assessment Studies	53
Appendix B – Feasibility Determination Factors, Characteristics, and Sample Evaluative Questions.....	59
References	62

List of Figures

Figure 1.	Road Diet	1
Figure 2.	Typical Road Diet Basic Design.....	3
Figure 3.	Focus of Each Informational Guide Chapter.....	6
Figure 4.	Mid-Block Conflict Points for Four-Lane Undivided Roadway and Three-Lane Cross Section.....	7
Figure 5.	Crossing and Through Traffic Conflict Points at Intersections for a Four-Lane Undivided Roadway and a Three-Lane Cross Section	8
Figure 6.	Major-Street Left-Turn Sight Distance for Four-Lane Undivided Roadway and Three-Lane Cross Section.....	8
Figure 7.	Addition of a Bike Lane Creates a Buffer between Pedestrians and Moving Vehicles	9
Figure 8.	Mid-block Pedestrian Refuge Island	9
Figure 9.	Pedestrian Refuge Island on a Road Diet Corridor in Chicago	10
Figure 10.	Road Diet in Flint, Michigan, Central Business District	13
Figure 11.	Four-lane Undivided Roadway Intersection Operating as a de facto Three-lane Cross Section	15
Figure 12.	Road Diet Implementation Maximum Volume Thresholds by Agency	17
Figure 13.	Bus Loading Zone in Seattle, Washington.....	18
Figure 14.	Buffered Bicycle Lanes on Wabash Avenue in Chicago.....	19
Figure 15.	Pedestrians Buffered from Traffic in Reston, VA.....	19
Figure 16.	55th Street in Chicago: Transit and Bicycles Share an Area at the Intersection (left); Transit Stop and Bicycle Lane (right);.....	20
Figure 17.	City of Seattle Modeling Flow Chart for Road Diet Feasibility Determination	25
Figure 18.	Painted Buffer Between Through Lane and Bicycle Lane in Lansing, Michigan	26
Figure 19.	Bicycle Lane on Rural 3-Lane Section, Lawyers Road, Reston, VA	34
Figure 20.	Typical Bike Lane Illustration	35
Figure 21.	Paired Parking Cross Sections (Adapted from AASHTO)	35
Figure 22.	Example Parking Lane Transition at Intersection (Adapted from AASHTO, 2011).....	36
Figure 23.	Transition from 3-lane to 2-lane Cross Section, Oak Street, Merrifield, VA	37
Figure 24.	Offset Driveways Causing Conflict Points in the TWLTL	43

List of Tables

Table 1.	Problems Potentially Correctable by Road Diet Implementation	2
Table 2.	Practitioner Interview Results Summary: Road Diet Installation Observations	12
Table 3.	Road Diet Implementation Considerations by Agency	28
Table 4.	Quantifiable Characteristics of Land User Contexts (NJDOT & PennDOT, 2008)	30
Table 5.	Regional Arterial Design Matrix (NJDOT & PennDOT, 2008)	31
Table 6.	Maximum Allowable Travel Distance in TWLTL	38

Acronyms

3R	Resurfacing, Restoration, and Rehabilitation
AASHTO	American Association of State Highway and Transportation Officials
AADT	Annual Average Daily Traffic
ADT	Average Daily Traffic
CRF	Crash Reduction Factor
CSS	Context Sensitive Solutions
DOT	Department of Transportation
GCMPC	Genesee County Metropolitan Planning Commission
FDF	Feasibility Determination Factor
FHWA	Federal Highway Administration
HSM	Highway Safety Manual
ITE	Institute of Transportation Engineers
KTC	Kentucky Transportation Center
LOS	Level of Service
MPH	Miles Per Hour
MUTCD	Manual on Uniform Traffic Control Devices
NACTO	National Association of City Transportation Officials
NCHRP	National Cooperative Highway Research Program
NHS	National Highway System
PDO	Property Damage Only
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
TWLTL	Two Way Left Turn Lane
VPHPD	Vehicles Per Hour Per Day
VPD	Vehicles Per Day

Executive Summary

Four-lane undivided highways have a history of relatively high crash rates as traffic volumes increase and as the inside lane is shared by higher-speed through traffic and left-turning vehicles.

One option for addressing this safety concern is a "Road Diet." A Road Diet involves converting an existing four-lane undivided roadway segment to a three-lane segment consisting of two through lanes and a center two-way left-turn lane (TWLTL). The reduction of lanes allows the roadway cross section to be reallocated for other uses such as bike lanes, pedestrian refuge islands, transit stops, or parking (see Figure 1).¹

Road Diet Definition

Conversion of a four-lane undivided road to a three-lane undivided road made up of two through lanes and a center two-way-left-turn-lane.

Benefits of Road Diet installations may include:

- An overall crash reduction of 19 to 47 percent.
- Reduction of rear-end and left-turn crashes through the use of a dedicated left-turn lane.
- Fewer lanes for pedestrians to cross and an opportunity to install pedestrian refuge islands.
- The opportunity to install bicycle lanes when the cross-section width is reallocated.



Figure 1. Road Diet
Photo Credit: Virginia Department of Transportation

- Reduced right-angle crashes as side street motorists must cross only three lanes of traffic instead of four.
- Traffic calming and reduced speed differential, which can decrease the number of crashes and reduce the severity of crashes if they occur.
- The opportunity to allocate the “leftover” roadway width for other purposes, such as on-street parking or transit stops.
- Encouraging a more community-focused, “Complete Streets” environment.
- Simplifying road scanning and gap selection for motorists (especially older and younger drivers) making left turns from or onto the mainline.

A Road Diet can be a low-cost safety solution, particularly in cases where only pavement marking modifications are required to make the traffic control change. In other cases, the Road Diet may be planned in conjunction with reconstruction or simple overlay projects, and the change in cross section allocation can be incorporated at no additional cost.

Geometric and operational design features should be considered during the design of a Road Diet. Intersection turn lanes, traffic volume, signing, pavement markings, driveway density, transit routes and stops, and pedestrian and bicyclist facilities should be carefully considered and appropriately applied during the reconfiguration for appropriate Road Diet implementation.² As with any roadway treatment, determining whether a Road Diet is the most appropriate alternative in a given situation requires data analysis and engineering judgment.

Once installed, it is important to monitor the safety and operational effects of the roadway, and to make changes as necessary to maintain acceptable traffic flow and safety performance for all road users. Evaluation of Road Diets will provide practitioners the information needed to continue implementing reconfiguration projects in their jurisdictions.

Table 1. Problems Potentially Correctable by Road Diet Implementation

Category	Problem	Rationale
Safety	Rear-end crashes with left-turning traffic due to speed discrepancies	Removing stopped vehicles attempting to turn left from the through lane could reduce rear-end crashes
	Sideswipe crashes due to lane changes	Eliminating the need to change lanes reduces sideswipe crashes
	Left-turn crashes due to negative offset left turns from the inside lanes	Eliminating the negative offset between opposing left-turn vehicles and increasing available sight distance can reduce left-turn crashes
	Bicycle and pedestrian crashes	Bicycle lanes separate bicycles from traffic; pedestrians have fewer lanes to cross and can use a refuge area, if provided
Operational	Delays associated with left-turning traffic	Separating left-turning traffic has been shown to reduce delays at signalized intersections
	Side street delays at unsignalized intersections	Side-street traffic requires shorter gaps to complete movements due to the consolidation of left turns into one lane
	Bicycle operational delay due to shared lane with vehicles or sidewalk use	Potential for including a bike lane eliminates such delays
Other	Bicycle and pedestrian accommodation due to lack of facilities	Opportunity to provide appropriate or required facilities, increasing accessibility to non-motorized users
	Unattractive aesthetic	Provisions can be made for traversable medians and other treatments
	Vehicles speeds discourage pedestrian activity	Potential for more uniform speeds; opportunity to encourage pedestrian activity

Adapted from Kentucky Transportation Center’s Guidelines for Road Diet Conversions³

1 Introduction

Improving safety is a top priority for the U.S. Department of Transportation, and the Federal Highway Administration (FHWA) remains committed to reducing highway fatalities and serious injuries on our Nation's roadways through the use of proven safety countermeasures, including Road Diets.

Four-lane, undivided highways experience a number of crash types as traffic volumes increase, including:

- Rear-end and sideswipe crashes caused by speed differential between vehicles;
- Sideswipe crashes caused by frequent and sudden lane changing between two through lanes;
- Rear-end crashes caused by left-turning vehicles stopped in the inside travel lane;
- Left-turn crashes caused by mainline left-turning motorists feeling pressure to depart the shared through/left lane by following motorists and making a poor gap judgment;
- Angle crashes caused by side street traffic crossing four lanes to make a through movement across an intersection, or turning left across two lanes;
- Bicycle crashes due to a lack of available space for bicyclists to ride comfortably; and
- Pedestrian crashes due to the high number of lanes for pedestrians to cross with no refuge.

As traffic volumes and turning movements (at intersections and driveways) increase, more and more four-lane, undivided roadways experience the above safety concerns. Additionally, as active transportation increases, communities desire more livable spaces, pedestrian and bicycle facilities, and transit options. One solution that benefits all modes is a Road Diet.

1.1. What is a Road Diet?

A Road Diet is generally described as "removing travel lanes from a roadway and utilizing the space for other uses and travel modes."⁴ This informational guide will focus on the most common Road Diet reconfiguration, which is the conversion of an undivided four lane roadway to a three-lane undivided roadway made up of two through lanes and a center two-way left-turn lane (TWLTL). The reduction of lanes allows the roadway cross section to be reallocated for other uses such as bike lanes, pedestrian refuge islands, transit uses, and/or parking (see Figure 2).⁵

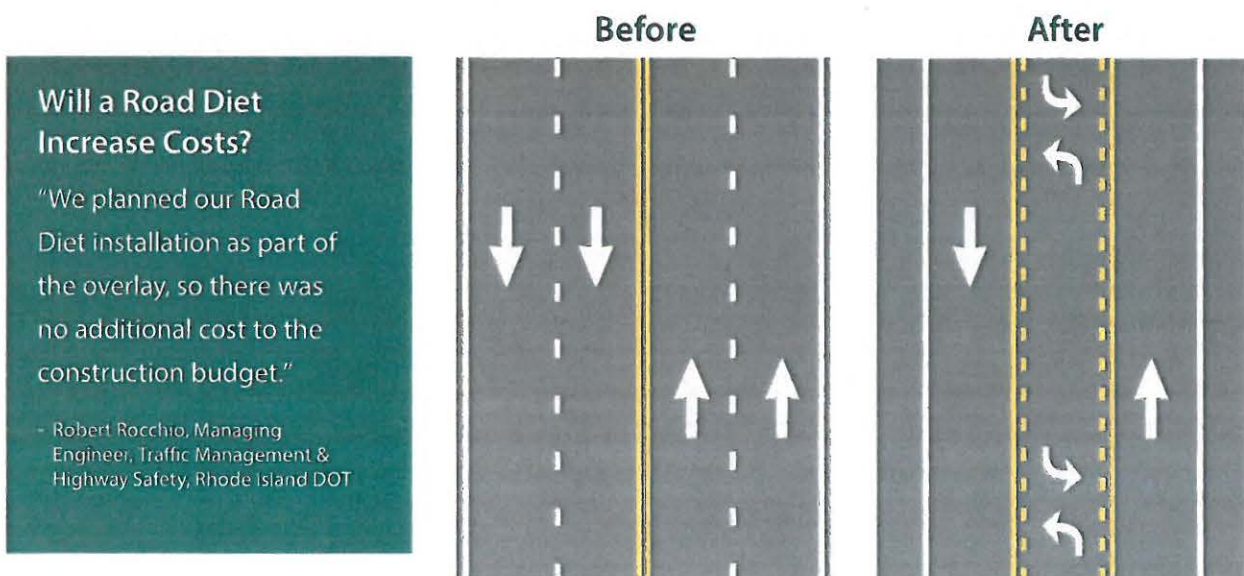
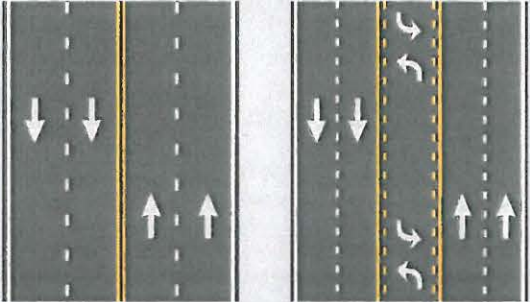
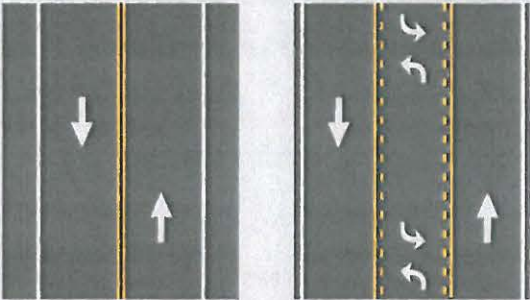
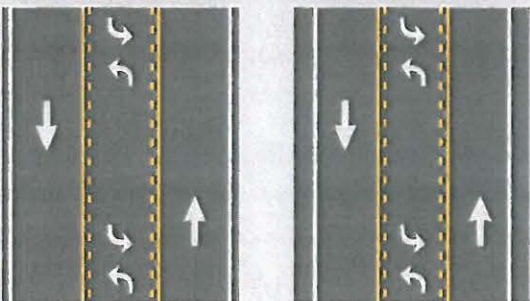
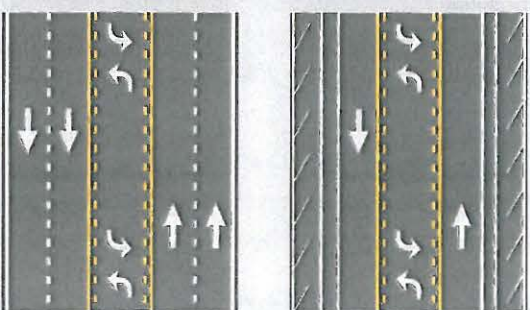


Figure 2. Typical Road Diet Basic Design

Other Roadway Reconfigurations

In addition to four- to three-lane configurations, other roadway reconfigurations, such as those depicted below, can also provide safety benefits:

<p>4-lane to 5-lane:</p> <p>In some cases it is necessary to keep two lanes in each direction for capacity purposes. Narrowing lane width to provide a TWLTL introduces the benefits of separating turning vehicles and reducing operating speeds.</p>	
<p>2-lane to 3-lane:</p> <p>If a capacity expansion of an existing two-lane road is desired, in some cases a three-lane cross section can provide similar operational benefits to a four-lane cross section while maintaining the safety benefits of the three-lane configuration.</p>	
<p>3-lane to 3-lane:</p> <p>In some cases practitioners could reduce the width of each lane instead of reducing the number of lanes. Converting an existing three-lane roadway to a three-lane cross section with narrowed lanes can accommodate bicycle lanes or parking, and provide some traffic calming benefit.</p>	
<p>5-lane to 3-lane</p> <p>In some cases jurisdictions have reconfigured five-lane sections to three lanes, adding features such as diagonal parking and protected bicycle lanes with the extra cross section width.</p>	

Other Combinations: Some cases may require allocating the cross section differently by providing unbalanced lane splits (e.g., two in one direction, one in the other), separated left turn lanes for opposite directions, or providing shoulders for other uses (e.g., parking, bicycle lanes, sidewalks). The basic concepts of Road Diets still apply, although in some cases there may be different safety and operational effects than with a classic 4-to-3 Road Diet.

1.2 History of Road Diets

The focus of roadway projects during the 1950s and 1960s was on system and capacity expansion, not contraction. Whenever and wherever traffic volumes on a section of road outgrew what a 2-lane road could accommodate efficiently, the next step in roadway design in most cases was to increase the cross-section to 4 lanes. No engineering guidance during that period encouraged consideration of a three-lane alternative.

Consequently, four-lane roadways became the norm throughout the country. Some of these roadways accommodated high traffic volumes requiring four-lane cross-sections; but many accommodated much less traffic for which a smaller cross-section simply had not been considered.

1.2.1 History of Road Diet Installations

Lane reduction projects have occurred for many years; they simply have not been recorded or studied. One of the first known installations of a Road Diet occurred in 1979 in Billings, Montana. Here, 17th Street West was converted from a four-lane undivided highway to three lanes (including a two-way left-turn lane, or TWLTL). The roadway width was 40 feet, and the average daily traffic (ADT) was approximately 10,000 vehicles. An unpublished report referenced in a number of previous studies indicated a reduction in crashes with no appreciable change to vehicle delay.⁶

Road Diets increased in popularity in the 1990s, with installations occurring in Iowa, Minnesota, and Montana, among many other states.⁷ In some instances the appreciation for Road Diets was shown first in urban areas, such as Seattle, Washington, and Portland, Oregon. More recently, FHWA deemed Road Diets and other roadway reconfigurations a "Proven Safety Countermeasure" and promoted it as a safety-focused alternative cross section to a four-lane undivided roadway.

1.2.2 History of Road Diet Safety Evaluations

Numerous studies have examined the estimated safety effects of converting four-lane undivided roads to three-lane cross sections with TWLTLs. The majority of treatment sites and crash data in these studies come from California, Iowa, and Washington, with additional analysis of Road Diets in Florida, Georgia, Michigan, Minnesota, and New York. Several studies used the same, or virtually the same, treatment sites in Iowa. Average Daily Traffic (ADT) for treatment sites in these studies ranged from 2,000 to 26,000, with most sites having an ADT below 20,000.

In the late 1970s, Nemeth conducted a research study focused on TWLTLs that included one field study location that was a four-lane undivided highway converted to three lanes in a commercial district. Results included a reduction in operating speed and increased delay.⁸

The safety analysis methods and the reliability of the findings vary widely. Some studies considered multiple treatment sites and used advanced statistical techniques such as the empirical Bayes methodology to estimate the change in total crashes and crash rates. Other studies were conducted using simple before-and-after analysis without controls, did not account for potential regression-to-the-mean effects, and examined crash data at a single treatment site for only several months following Road Diet implementation.

Pawlovich, et al., (2005) conducted a Bayesian data analysis of 15 Iowa Road Diet treatment sites and 15 control sites over a 23-year period. Traffic volumes ranged from approximately 2,000 to 15,000 vehicles per day. The study concluded that a Road Diet produced a 25.2 percent reduction in crashes per mile of roadway and an 18.8 percent reduction in the crash rate.⁹

A study by Noyce et al. (2006) first analyzed data using traditional approaches, which involved a comparison of before-and-after crashes. Crash data were analyzed by yoked-pair comparison analysis and the empirical Bayes approach. The traditional before-and-after approach estimated a reduction in total crashes of approximately 42 percent. A yoked-pair comparison analysis found a 37 percent reduction in total crashes and a 46 percent reduction in property damage only (PDO) crashes (both statistically significant). The estimated reductions in crash rates (per vehicle mile traveled) were 47 percent for total crashes and 45 percent for PDO crashes (both statistically significant), and the empirical Bayes approach estimated a 44 percent reduction in total crashes.

In 2010, FHWA conducted an empirical Bayes evaluation of total crash frequency before-and-after Road Diet implementation. Results indicated a statistically significant reduction in crashes due to the Road Diet treatment in two separate data sets (one data set for 15 sites in Iowa and one set for 30 sites in California and Washington), as well as for the results of all 45 sites combined. The Iowa data indicate a 47 percent reduction in total crashes while the California and Washington data indicate a 19 percent decrease. Combining both data sets results in an estimated 29 percent reduction in total crashes.¹⁰

The FHWA report indicated that differences between the Iowa sites and those in California and Washington may be a function of traffic volumes and characteristics of the urban environments where the Road Diets were implemented. Annual average daily traffic (AADT) for the Iowa sites ranged from 3,718 to 13,908 and locations were predominately on U.S. or State routes passing through small towns; AADT for the sites in California and Washington ranged from 6,194 to 26,376 and were predominately on corridors in suburban environments that surrounded larger cities. Sites with lower crash modification factors (CMFs) generally had higher traffic volumes, suggesting the possibility of diminishing safety benefits as traffic volumes increase. The authors recommended that the choice of which CMF to use should be based on characteristics of the site being considered. If the proposed treatment site is more like the small-town Iowa sites, then the 47 percent reduction found in Iowa should be used. If the treatment site is part of a corridor in a suburban area of a larger city, then the 19 percent reduction should be used. If the proposed site matches neither of these site types, then the combined 29 percent reduction is most appropriate.

Based on the history of safety studies presented in this section, installing a Road Diet can lead to an expected crash reduction of 19 to 47 percent. Variables affecting safety effectiveness include pre-installation crash history, installation details, traffic volumes, and the urban or rural nature of the corridor.

Appendix A provides summaries of the key findings from Road Diet safety assessments and additional detail about the individual studies.

1.3 Purpose and Objectives of the Informational Guide

The *Road Diet Informational Guide* provides safety, operational, and quality-of-life considerations from research and practice that may impact all users along a corridor – motorists, commercial vehicles, and non-motorized traffic. This document will guide readers through the decision-making process to determine if Road Diets are a good fit for a certain corridor. The guide will also discuss Road Diet feasibility, design, and post-implementation evaluation.



Figure 3. Focus of Each Informational Guide Chapter

1.4 Organization of the Guide

The *Road Diet Informational Guide* is organized in the following manner, as illustrated in Figure 3 and described below:

Chapter 2 presents a high-level overview of how a Road Diet can improve safety and maintain operations for motorized and non-motorized road users along a corridor, enhance the quality of life and livability, and be implemented at a low cost.

Chapter 3 takes an in-depth look at impacts that a Road Diet may have on safety and operations for motorists, pedestrians, bicyclists, and transit along a corridor. This chapter includes feasibility determination factors that assist practitioners with selecting corridors that may be candidates for Road Diets and presents guidance for discussing Road Diets with a community.

Chapter 4 leads practitioners through the Road Diet design process. This chapter provides geometric design, operational design, and both Complete Street and system-wide considerations. The intent of this chapter is to walk a practitioner through the design process for the corridor that will be converted to a Road Diet design.

Chapter 5 details post-implementation evaluation processes to measure Road Diet performance. Several evaluations exist for determining the effect a Road Diet has on safety, operations, non-motorized transportation modes, and transit.

2 Why Consider a Road Diet?

Road Diets have the potential to improve safety, convenience, and quality of life for all road users. Road Diets can be relatively low cost if planned in conjunction with reconstruction or simple overlay projects since applying Road Diets consists primarily of restriping.¹¹

2.1 Benefits of Road Diets

For roads with appropriate traffic volumes, there is strong research support for achieving safety benefits through converting four-lane undivided roads to three-lane cross sections with TWLTLs. Operational and design changes associated with Road Diets that promote safety include reduced vehicle speeds, reduced vehicle-pedestrian, -bicycle, and -vehicle conflicts. For detailed information about the research behind the safety impacts of Road Diets, see Appendix A.

2.1.1 Improved Safety

As noted previously, Road Diets reduce vehicle-to-vehicle conflicts that contribute to rear-end, left-turn, and sideswipe crashes by removing the four-lane undivided inside lanes serving both through and turning traffic. Studies indicate a 19 to 47 percent reduction in overall crashes when a Road Diet is installed on a previously four-lane undivided facility as well as a decrease in crashes involving drivers under 35 years of age and over 65 years of age.^{12,13}

Road Diets improve safety by reducing the speed differential. On a four-lane undivided road, vehicle speeds can vary between travel lanes, and drivers frequently slow or change lanes due to slower or stopped vehicles (e.g., vehicles stopped in the left lane waiting to turn left). Drivers may also weave in and out of the traffic lanes at high speeds. In contrast, on three-lane roads with TWLTLs the vehicle speed differential is limited by the speed of the lead vehicle in the through lane, and through vehicles are separated from left-turning vehicles. Thus, Road Diets can reduce the vehicle speed differential and vehicle interactions, which can reduce the number and severity of vehicle-to-vehicle crashes. Reducing operating speed decreases crash severity when crashes do occur.

The figures below illustrate conflict points and safety issues related to turning movements for four-lane undivided roadways and three-lane cross sections.

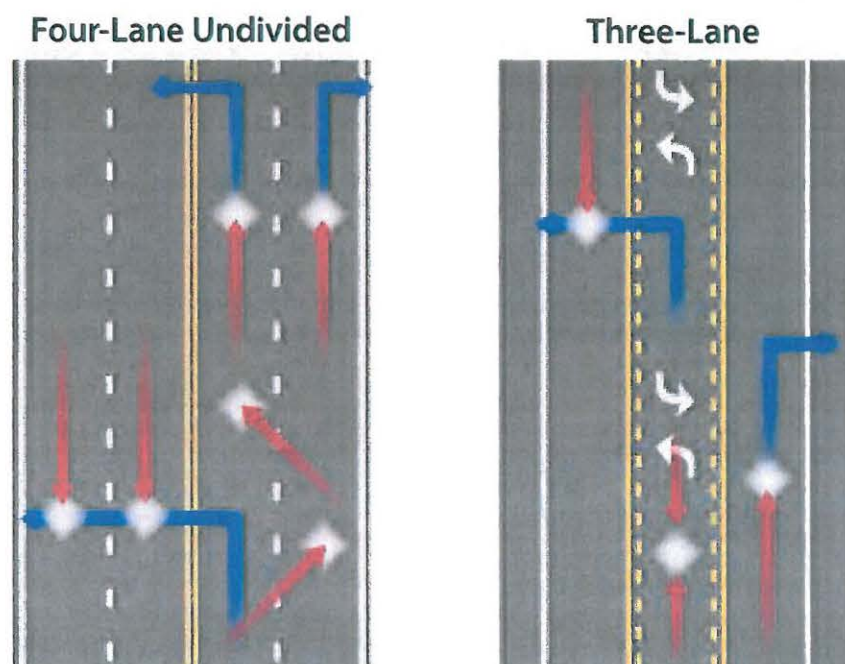


Figure 4. Mid-Block Conflict Points for Four-Lane Undivided Roadway and Three-Lane Cross Section (Adapted from Welch, 1999)

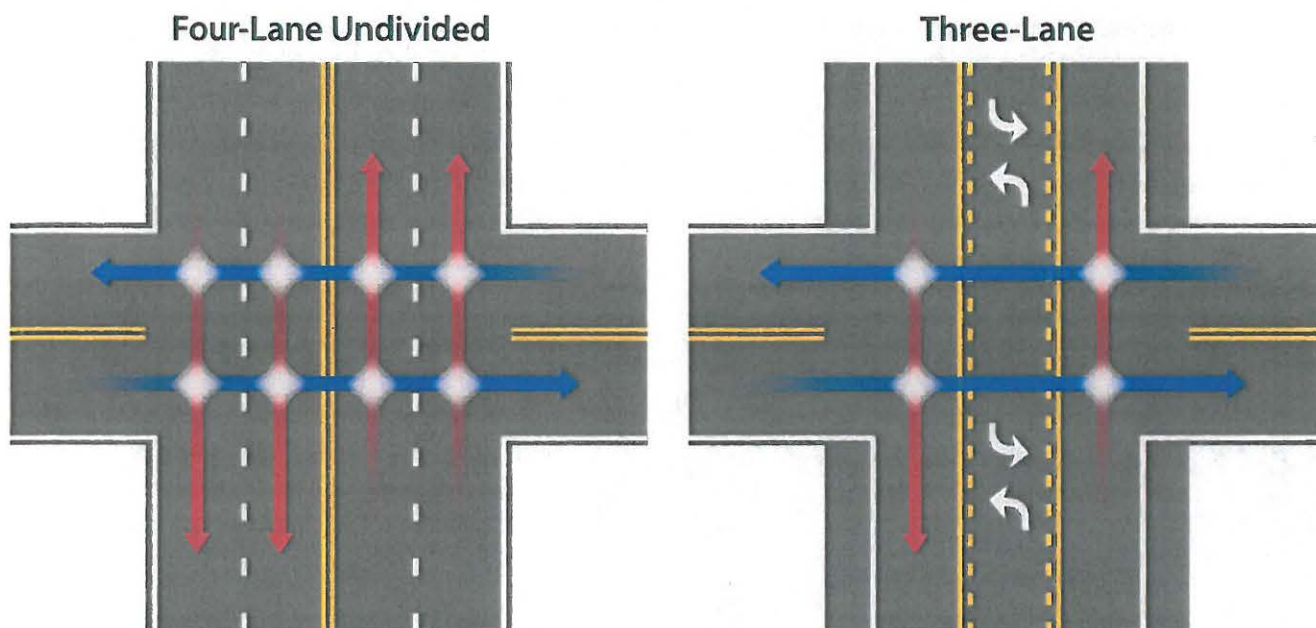


Figure 5. Crossing and Through Traffic Conflict Points at Intersections for a Four-Lane Undivided Roadway and a Three-Lane Cross Section
(Adapted from Welch, 1999)

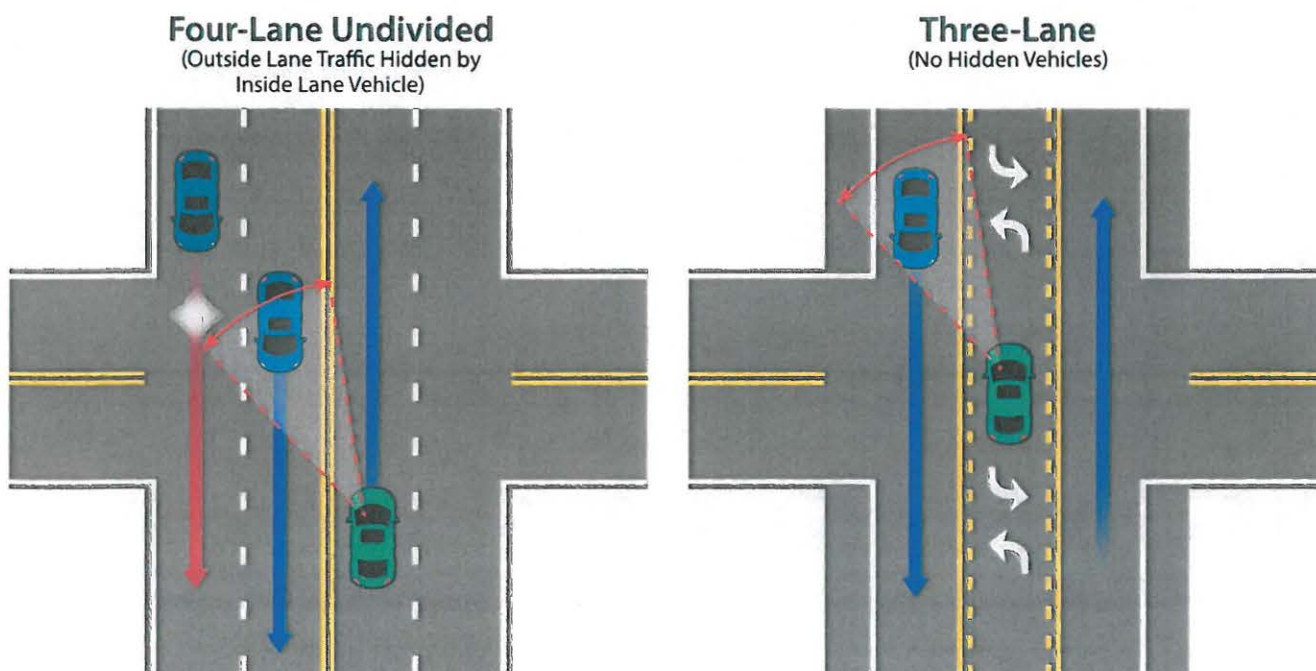


Figure 6. Major-Street Left-Turn Sight Distance for Four-Lane Undivided Roadway and Three-Lane Cross Section
(Adapted from Welch, 1999)

2.1.2 Operational Benefits

Additionally, a Road Diet can provide the following operational benefits:

- **Separating Left Turns.** Separating left-turning traffic has been shown to reduce delays at signalized intersections.
- **Side-street Traffic Crossing.** Side-street traffic can more comfortably enter the mainline roadway because there are fewer lanes to cross. This can reduce side-street delay.
- **Speed Differential Reductions.** The reduction of speed differential due to a Road Diet provides more consistent traffic flow and less "accordion-style" slow-and-go operations along the corridor.

On some corridors the number and spacing of driveways and intersections leads to a high number of turning movements. In these cases, four-lane undivided roads can operate as de facto three-lane roadways. The majority of the through traffic uses the outside lanes due to the high number of left-turning traffic in the inside shared through and left-turn lane. In these cases a conversion to a three-lane cross section may not have much effect on operations.



Figure 7. Addition of a Bike Lane Creates a Buffer between Pedestrians and Moving Vehicles
Photo Credit: Jennifer Atkinson



Figure 8. Mid-block Pedestrian Refuge Island
Photo Credit: Jennifer Atkinson

2.1.3 Pedestrian and Bicyclist Benefits

Road Diets can be of particular benefit to non-motorized road users. They reallocate space from travel lanes—space that is often converted to bike lanes or in some cases sidewalks, where these facilities were lacking previously. These new facilities have a tremendous impact on the mobility and safety of bicyclists and pedestrians as they fill in a gap in the existing network. Even the most basic Road Diet has benefits for pedestrians and bicyclists, regardless of whether specific facilities are provided for these modes. As mentioned above, the speed reductions that are associated with Road Diets lead to fewer and less severe crashes. The three-lane cross-section also makes crossing the roadway easier for pedestrians, as they have one fewer travel lanes to cross and are exposed to moving traffic for a shorter period of time.

Uncontrolled and midblock pedestrian crossing locations tend to experience higher vehicle travel speeds, contributing to increased injury and fatality rates when pedestrian crashes occur. Midblock crossing locations account for more than 70 percent of pedestrian fatalities.¹⁴ Zegeer et al. (2001) found a reduction in pedestrian crash risk when crossing two- and three-lane roads compared to roads with four or more lanes.¹⁵ With the addition of a pedestrian refuge island – a raised island placed on a street to separate crossing pedestrians from motor vehicles (see Figure 8) – the crossing becomes shorter and less complicated. Pedestrians only have to be concerned with one direction of travel at a time. Refuge islands have been found to provide important safety benefits for pedestrians.¹⁶

Lessons Learned

In one case in Grand Rapids, Michigan, the transit agency moved a bus route that had become too slow and unpredictable after a Road Diet.

Road Diets often include either on-street parking or a bike lane, which create a buffer between pedestrians and moving vehicles. This is especially beneficial in central business districts if officials desire to improve the pedestrian experience.

For bicyclists, the biggest benefit of Road Diets is through the addition of bicycle facilities. A Road Diet can transform a street that was formerly difficult for a bicyclist to travel along to a comfortable route that attracts many more bicyclists. When bicycle lanes are striped, bicyclists are more visible and motorists know where to look for them, speeds are reduced, and bicycle safety can be improved. In some cases, buffered bicycle lanes are added by providing a visual or even physical barrier between modes of travel (e.g., adding flexible delineators on the lane line between motor vehicles and bicycles.) This further enhances the comfort of the route and may encourage increased usage.

Even without a dedicated bicycle lane or buffer, a motorist on a three-lane roadway is able to move over closer to the center lane on a three-lane roadway when approaching a bicycle. A motorist on a four-lane undivided roadway will have less opportunity to move over to the left as it is an active travel lane.

2.1.4 Livability Benefits

Added to the direct safety benefits, a Road Diet can improve the quality of life in the corridor through a combination of bicycle lanes, pedestrian improvements, and reduced speed differential, which can improve the comfort level for all users. Livability is, “about tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools, and safer streets and roads.”¹⁷ Road Diets can help achieve desired livability on certain roadways.

2.2 Synergies and Trade-offs

Interviews with agencies that have implemented Road Diets found many synergies between improvements for one mode and their impacts on another. The City of Chicago found that the addition of pedestrian refuge islands, as illustrated in Figure 9, was a significant benefit of their Road Diets. In some cases, improving pedestrian safety was the main objective of the Road Diet, but in other cases, the original intent was to add bicycle lanes or to simply address general traffic safety and/or operations issues.

Table 2 summarizes the positive and negative potential impacts of various features of Road Diets based on findings from researcher field visits and agency interviews.

Some of the treatments for one mode have obvious synergies with other modes, such as bicycle lanes that not only provide added comfort for bicyclists, but also for pedestrians by increasing their separation from vehicles. Other relationships are not as obvious. For instance, Road Diets in Iowa and Chicago generated increased vehicular traffic on the corridor, indicating an increase in demand after installation. In Pasadena, the unexpected benefit of a Road Diet to a pedestrian crossing (the pedestrians were able to safely cross more easily) eliminated the need for a pedestrian traffic signal, resulting in cost savings and the potential impacts of the traffic signal on traffic flow.

Pedestrian Refuge

Pedestrian refuge islands can reduce pedestrian-related crashes by up to 46 percent.¹⁸



Figure 9. Pedestrian Refuge Island on a Road Diet Corridor in Chicago
Photo Credit: Stacey Meekins

Benefits for Buses

A Road Diet on Ingersoll Avenue in Des Moines, IA provided a benefit to buses: instead of stopping in a through lane and blocking traffic as they had done before the reconfiguration, the new design accommodated transit buses with a bus turn out.

The impacts on transit varied among the Road Diets studied. In some cases, the Road Diet was seen as a positive by the transit agency. In other cases, particularly in less urban areas, the reduction of travel lanes caused congestion as traffic backed up behind buses loading and unloading at the curb. A similar consequence as a result of mail delivery was also found in less urban areas. Prior to the Road Diet, vehicles were able to pass stopped buses or mail carrier vehicles using the inside lane. The back-ups that occurred after the conversion resulted in some vehicles making illegal maneuvers to pass the bus in the two-way left turn lane (TWLTL). Some Road Diets include measures to address this issue, such as shoulders or dedicated pull-outs that allow buses and mail trucks to make their stops outside the travel lane.

Road Diets can also introduce some traffic safety concerns. One concern is the use by pedestrians of TWLTLs as a refuge, which could make pedestrians vulnerable to being struck by vehicles traveling in the TWLTL. However, as evidenced in published assessments of Road Diet implementations, pedestrian safety is generally enhanced by this type of roadway reconfiguration, especially if a pedestrian refuge island is included.

Some impacts are seen as a positive by some agencies and a negative by others, which may be dependent on the context and users of the roadway. In Iowa, a Road Diet along a truck route narrowed lanes from 13 feet to 10 feet; these seemed too narrow to commercial vehicle drivers. Meanwhile, in Chicago and Michigan, shoulders and buffers between bicycle lanes and travel lanes were added primarily to keep travel lanes to 12 feet wide or less. In these cases, the wider lanes were undesirable because they encourage faster speeds.

In addition, a common concern in implementing Road Diets is that drivers on cross-streets or driveways may have difficulty finding a suitable gap in traffic to enter the main roadway because through traffic is now using a single through lane. However, in Chicago it was found that some side street traffic had an easier time crossing the corridor after the Road Diet was installed because the traffic patterns were simpler and gaps were easier to find.

In some States maintenance funding can be affected. Lane-miles are sometimes used as the measurement to calculate budgets for maintenance activities, defined only as those miles used for motor vehicle traffic – not bicycle lanes, parking, or other uses. When a Road Diet is introduced, one-quarter of the motor vehicle lane-miles are removed, which can equate to a similar reduction in maintenance funds. Discussions are underway in affected states to address this situation.

Table 2. Practitioner Interview Results Summary: Road Diet Installation Observations

Road Diet Feature	Primary/Intended Impacts	Secondary/Unintended Impacts	
		Positive	Negative
Bike lanes	<ul style="list-style-type: none"> Increased mobility and safety for bicyclists, and higher bicycle volumes Increased comfort level for bicyclists due to separation from vehicles 	<ul style="list-style-type: none"> Increased property values 	<ul style="list-style-type: none"> Could reduce parking, depending on design
Fewer travel lanes	<ul style="list-style-type: none"> Reallocate space for other uses 	<ul style="list-style-type: none"> Pedestrian crossings are easier, less complex Can make finding a gap easier for cross-traffic Allows for wider travel lanes 	<ul style="list-style-type: none"> Mail trucks and transit vehicles can block traffic when stopped May reduce capacity In some jurisdiction, maintenance funding is tied to the number of lane-miles, so reducing the number of lanes can have a negative impact on maintenance budgets Similarly, some Federal funds may be reduced If travel lanes are widened, can encourage increased speeds
Two-Way Left Turn Lane	<ul style="list-style-type: none"> Provide dedicated left turn lane 	<ul style="list-style-type: none"> Makes efficient use of limited roadway area 	<ul style="list-style-type: none"> Could be difficult for drivers to access left turn lane if demand for left turns is too high
Pedestrian refuge island	<ul style="list-style-type: none"> Increased mobility and safety for pedestrians 	<ul style="list-style-type: none"> Makes pedestrian crossings safer and easier Prevents illegal use of the TWLTL to pass slower traffic or access an upstream turn lane 	<ul style="list-style-type: none"> May create issues with snow removal Can effectively increase congestion by preventing illegal maneuvers
Buffers (grass, concrete median, plastic delineators)	<ul style="list-style-type: none"> Provide barriers and space between travel modes 	<ul style="list-style-type: none"> Increases comfort level for bicyclists by increasing separation from vehicles Barrier can prevent users entering a lane reserved for another mode 	<ul style="list-style-type: none"> Grass and delineator buffers will necessitate ongoing maintenance.

3 Road Diet Feasibility Determination

While Road Diets can improve safety and accommodate motorized and non-motorized transportation modes along a corridor, they may not be appropriate or feasible in all locations. There are many factors to consider before implementing a Road Diet. Agencies should consider the objective of the Road Diet, which could be one or more of the following:

- Improve safety
- Reduce speeds
- Mitigate queues associated with left-turning traffic
- Improve pedestrian environment
- Improve bicyclist accessibility
- Enhance transit stops.

Identifying the objective(s) will help determine whether the Road Diet is an appropriate alternative for the corridor that is being evaluated.

Driveway density, transit routes, the number and design of intersections along the corridor, as well as operational characteristics are some considerations to be evaluated before deciding to implement a Road Diet.

Other considerations include roadway function and access control, turning volumes and 85th percentile speed, crash type and patterns, pedestrian and bicycle activity, and right-of-way availability and cost.¹⁹

Low-Cost Solution

The vast majority of Road Diets are installed on existing pavement within the right-of-way.



Figure 10. Road Diet in Flint, Michigan, Central Business District
Photo Credit: Jennifer Atkinson

3.1 Safety Factors

One of the primary reasons for a Road Diet installation is to address an identified crash problem. Four-lane undivided highways have inherent design aspects that make them susceptible to crashes. Left-turning and through movements sharing a single lane contributes to rear-end crashes, left-turn crashes, and speed discrepancies. In most cases, current four-lane undivided cross sections do not include accommodations for bicyclists, and most have no refuge for pedestrians to cross four lanes of traffic. When a Road Diet is considered for safety reasons, practitioners must determine if the crash patterns are those that can be addressed with this alternative.

Overall, the statistical analyses of Road Diet conversion safety impacts have shown a range of positive results, with differences often related to whether the installation occurred in a rural or urban area. As such, this difference should be considered when determining Road Diet conversion feasibility. A more detailed discussion of expected safety improvements from a Road Diet conversion is contained in Chapter 2. The reduction in conflict points at intersections, improved sight distance, easier maneuverability for vehicles turning left, and the elimination of weaving are also contributors to the safety improvements at case study Road Diet conversion locations. It is speculated in the Iowa Road Diet guidelines that the only crash type that might increase with this type of conversion would be those related to the additional stop/start conflicts occurring between through and right-turn vehicles and due to the potential increase in congestion.²⁰

3.2 Context Sensitive Solutions and Complete Streets

FHWA defines a context sensitive solution (CSS) as a “collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist.”²¹

The topic of CSS comes into play when determining whether or not a Road Diet is “right” for a specific location. FHWA and the American Association of State Highway and Transportation Officials (AASHTO) have directives and strong policy-level support for context-sensitive design. According to FHWA, CSS includes the following seven qualities of design excellence:

1. The project satisfies the purpose and needs as agreed to by a full range of stakeholders. This agreement is forged in the earliest phase of the project and amended as warranted as the project develops.
2. The project is a safe facility for both the user and the community.
3. The project is in harmony with the community, and it preserves environmental, scenic, aesthetic, historic, and natural resource values of the area.
4. The project exceeds the expectations of both designers and stakeholders and achieves a level of excellence in people's minds.
5. The project involves efficient and effective use of the resources (time, budget) of all involved parties.
6. The project is designed and built with minimal disruption to the community.
7. The project is seen as having added lasting value to the community.²²

When considering whether to implement a Road Diet, part of the practitioner’s evaluation process should include whether it will meet these qualities.

The concept of Complete Streets is similar to CSS in that it suggests that the street network should be planned, designed, maintained, and operated in a way that accommodates all road users and those who use the surrounding environment; not doing so will result in “incomplete” streets. The concept impacts the planning and design phases of a roadway as well as the day-to-day operations.

What it means for a street to be complete is inherent to the context and will differ depending on how the street is intended to function, what types and volumes of road users it should accommodate, the destinations it serves, and the right-of-way available. Many communities have embraced this concept by adopting Complete Streets policies, establishing the expectation that all future roadway projects will adhere to the principle that streets should be designed with all users in mind rather than simply providing enough capacity for vehicle through-put. To aid in implementing the policy, many communities are also developing Complete Streets design guidelines, which address the examples listed and other intricacies of how the design of a roadway should relate to the surrounding context.

Complete Streets Commitment

More than 600 State, regional, and local jurisdictions have adopted Complete Streets policies or have made a written commitment to do so.

3.3 Operational Factors

Consider the following common operational issues when determining the feasibility of a site for a Road Diet.

3.3.1 De Facto Three-Lane Roadway Operation

The traditional definition of a roadway function is based on vehicular mobility and access. The functional goal for a potential Road Diet corridor should consider impacts on the mobility and access of all road users. Practitioners should also consider the adjacent land uses along a corridor. For example, a Road Diet is likely to succeed operationally if the roadway is already operating as a “de facto three-lane roadway.” A de facto three-lane roadway is one in which the left-turning vehicles along the existing four-lane undivided roadway have resulted in the majority of the through traffic using the outside lanes (see Figure 11). The overall objective of the Road Diet is to match the design with the intended or preferred function of the roadway for all road users.

3.3.2 Speed

When possible, match vehicle speed to the context of surrounding land uses, such as through central business districts and neighborhoods, and to all road users. Sometimes this means that lower vehicle speeds are more desirable. These areas often have higher pedestrian and bicycle volumes in addition to younger pedestrians and bicyclists. The need to “calm” or reduce vehicle speeds is often cited as a reason for Road Diet conversions.²³

Road Diets can reduce speed differential. The case study and simulation results of operational analyses from *Converting Four-Lane Undivided Roadways to a Three-Lane Cross Section - Factors to Consider* show that 85th percentile and average speed along conversions are likely to decrease by 3 to 5 mph.²⁴ Anecdotal evidence from several case studies has shown that this type of conversion can result in lower vehicle speed variability.

If speeding was documented in the four-lane undivided configuration, a Road Diet can be a useful tool for reducing speeds, especially high-end speeders. Studies have shown a reduction in 85th percentile speed of less than 5 mph^{25,26} and in reducing the number of vehicles speeding excessively—defined as those going over 36 mph in a 30 mph speed zone.²⁷ Another study also reported a 7 percent reduction in vehicles traveling over the posted speed limit.²⁸ A greater reduction in speed was observed on corridors with higher traffic volumes.²⁹

3.3.3 Level of Service (LOS)

Level of Service (LOS) is a qualitative measure of traffic conditions using a quantitative stratification of a performance measure or measures. Consider LOS for two components: intersections and arterial segments. Corridors with closely spaced signalized intersections may have a larger impact on the Road Diet operation due to queuing affecting adjacent signalized intersections. This impact could be mitigated by signal timing and coordination between adjacent signals, allowing the corridor to be “flushed” with each green cycle. The City of Lansing, Michigan, goes a step further, considering updates to everything along a new Road Diet corridor, including potential changes to traffic control (e.g., signal removal, roundabout installation).



Figure 11. Four-lane Undivided Roadway Intersection Operating as a de facto Three-lane Cross Section
Photo Credit: Tom Welch

The LOS on urban arterials would provide a more accurate view of conditions for roads with longer distances between signalized intersections or no signalized intersections in the corridor. The arterial LOS as measured by vehicle speed is affected by signal spacing, access point frequency, number of left turning vehicles, and number of lanes.

The difference in delays and queues should also be considered when determining the feasibility of a Road Diet conversion. After the conversion, the through vehicle delay due to turning traffic should typically decrease. The delays for left-turning vehicles, however, may increase because a similar through volume is now using one through lane rather than two. Through-vehicle delay and queuing along the main line and minor street approaches may also increase and should be considered during detailed analysis of this type of conversion. Once again, the difference in these measures can be small if the existing four-lane undivided roadway is generally operating at or close to that of a de facto three-lane roadway. Several measures that also can be used to mitigate and minimize these operational impacts include, but are not limited to, signal optimization and coordination, turn lane additions, and driveway consolidation. Of particular interest and focus should be minor street delays and queues at signalized intersections and the available gaps at unsignalized intersections or driveways. Practitioners should consider the mitigation of any negative impacts during the more detailed alternative analysis and evaluation and weigh them against benefits for non-motorized road users.

3.3.4 Quality of Service

Quality of service is defined as a "quantitative indicator of the operational conditions of a facility or service and users' perception of these conditions."³⁰ Agencies have used a number of objective and subjective measures, including "perceived level of safety and comfort" in Florida's bicycle and pedestrian level of service methodologies.³¹

Practitioners should consider user quality of service for individual intersections and arterial segments as well as the overall facility. New methodologies for urban street facilities in the 2010 Highway Capacity Manual (HCM) allow analysts to determine quality of service measures for automobiles, pedestrians, bicyclists, and transit.

The HCM 2010 notes that automobile mode quality of service is based on performance measures that are field-measurable, while the pedestrian and bicyclist qualities of service are based on traveler-reported scores based on perceived quality of service. Transit quality of service is based on changes in transit patronage that come from changes in service quality. In this context, a multimodal LOS (MMLOS) analysis is included to evaluate the LOS of each travel mode simultaneously (note that a combined LOS is not calculated). Strengths of the MMLOS analysis include the ability to quantify and assess quality of service trade-offs between modes and to help prioritize possible improvements that may impact each mode differently.³²

What about Capacity?

There is often concern about apparently reducing the capacity of a four-lane undivided roadway in half by converting it to a three-lane cross section with a Road Diet. Practitioners have found some cases of the four-lane undivided road operating as a de facto three-lane roadway due to turning movements and driver behavior. Therefore, the effective capacity reduction is much less than the theoretical reduction assumed before implementation.

Some of the following general trends are expected.

- Pedestrian LOS scores are likely to improve due to the lane reduction, speed reduction, and the reallocation of traveled way width to bicycle lanes and on-street parking.
- Bicycle LOS scores will improve as a result of some of the same factors, as well as the addition of a bicycle lane.
- Applying a Road Diet configuration on a corridor with frequent signalized intersections will have a larger impact on automobile operations than it would on a corridor with more infrequent signal spacing. Frequently spaced signals are more likely to have queued traffic back up into adjacent signals' effective areas, causing congestion issues at multiple intersections. In some cases this impact can be mitigated by optimizing the signal timing and coordinating between signals. The arterial automobile LOS will provide a more accurate view of conditions when there are longer distances between signalized intersections or only unsignalized intersections in the corridor.
- The following factors will affect automobile LOS, as measured by vehicle speed: signal spacing, access point frequency, number of left-turning vehicles, and number of lanes.

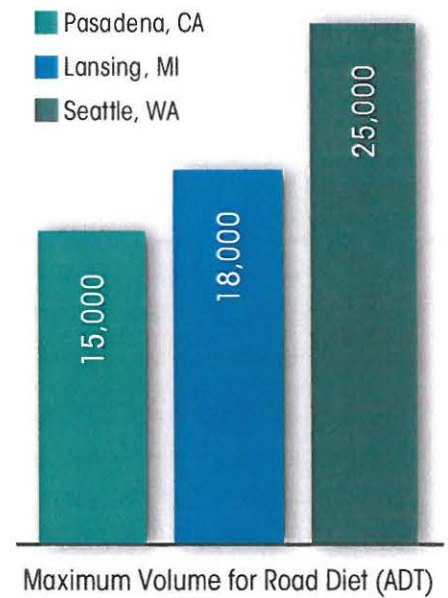


Figure 12. Road Diet Implementation Maximum Volume Thresholds by Agency

One study conducted a sensitivity analysis to determine at what hourly volume the arterial LOS would decline. It found that a two-way peak hour volume of 1,750 vehicles per hour (875 each direction) was the threshold when a decrease in LOS was observed.³³ It also found this could be mitigated by signal timing optimization.³⁴

3.3.5 Average Daily Traffic (ADT)

The ADT provides a good first approximation on whether or not to consider a Road Diet conversion. If the ADT is near the upper limits of the study volumes, practitioners should conduct further analysis to determine its operational feasibility. This would include looking at peak hour volumes by direction and considering other factors such as signal spacing, turning volumes at intersections, and other access points. Each practitioner should use engineering judgment to decide how much analysis is necessary and take examples from this report as a guide.

- A 2011 Kentucky study showed Road Diets could work up to an ADT of 23,000 vehicles per day (vpd).³⁵
- In 2006, Gates, et al. suggested a maximum ADT of between 15,000 and 17,500 vpd.³⁶

Knapp, Giese, and Lee have documented Road Diets with ADTs ranging from 8,500 to 24,000 vpd.³⁷ The FHWA advises that roadways with ADT of 20,000 vpd or less may be good candidates for a Road Diet and should be evaluated for feasibility. Figure 12 shows the maximum ADTs used by several agencies to determine whether to install a Road Diet. Road Diet projects have been completed on roadways with relatively high traffic volumes in urban areas or near larger cities with satisfactory results.

3.3.6 Peak Hour and Peak Direction

The peak hour volume in the peak direction will be the measure of volume driving the analysis and can determine whether the Road Diet can be feasibly implemented. This is the traffic volume that would be used in calculating LOS analysis for intersections or the arterial corridor.

Peak-hour volumes along urban roadways typically represent 8 to 12 percent of the ADT along a roadway. The Iowa guidelines suggest, from an operational point of view, the following volume-based Road Diet feasibility conclusions (assuming a 50/50 directional split and 10 percent of the ADT during the peak hour):³⁸

- Probably feasible at or below 750 vehicles per hour per direction (vphpd) during the peak hour.
- Consider cautiously between 750 – 875 vphpd during the peak hour.
- Feasibility less likely above 875 vphpd during the peak hour and expect reduced arterial LOS during the peak period.

3.3.7 Turning Volumes and Patterns

The volume and pattern of turning vehicles influences roadway safety and operation. Practitioners should assess turn volumes and patterns when considering the feasibility of a Road Diet conversion. In general, four-lane undivided roadways begin to operate in a manner similar to a three-lane roadway as the number of access points and left-turn volumes increase. In this situation the four-lane undivided roadway begins to operate as a de facto three-lane roadway and the operational impacts of a Road Diet conversion may be smaller. This type of situation, if expected during the entire design period, would be more likely to define a feasible Road Diet conversion location.³⁹ If it is determined that the four-lane undivided to three-lane conversion is a feasible option along a roadway corridor, a more detailed operational analysis of the existing and expected through and turning volumes is necessary (see Chapter 4).

The operation of each corridor is unique and requires an evaluation to determine if a Road Diet cross-section conversion is feasible. For example, if a major driveway exists along the corridor, it could change the potential impacts of a Road Diet by introducing another (often closely-spaced) opportunity for additional vehicular turning movements. If motorists are trying to turn into driveways opposite each other, opposite-direction vehicles could end up in the TWLTL and have potential conflicts.

Offset intersections can cause a similar problem, as vehicular left-turning traffic can enter the TWLTL from opposite directions, desiring the same space from which to make their turn. Depending on the design of intersections and driveways, along with the volume of left turning traffic, this can result in potential conflicts.

3.3.8 Frequently Stopping and Slow-Moving Vehicles

The number and frequency of slow-moving and frequently stopping vehicles using a roadway corridor is a factor to consider when evaluating the application of a Road Diet conversion. Some examples of these types of vehicles include agricultural equipment, transit buses, curb-side mail delivery, trash pick-up, and horse-drawn vehicles. These types of vehicles have a greater impact on the operation of a three-lane roadway than a four-lane undivided roadway. The primary reason for this increased impact is the inability of other vehicles to legally pass frequently stopping or slow-moving vehicles. When determining the feasibility of a Road Diet conversion, practitioners should take into account the number and duration of vehicle stops along the corridor (particularly during peak hours), as well as the enforcement levels needed to deter illegal passing. One potential mitigation measure to minimize the impact of frequently stopping vehicles is to provide pull-out areas at specific locations along the corridor. Another potential mitigation is to use some of the existing cross section for these types of vehicles (e.g., a transit lane). Improvements to intersection and driveway radii or pavement markings to serve these types of vehicles should also be considered if the Road Diet is selected as a feasible option.

Simulated comparisons of a quarter-mile, four-lane, undivided roadway with a three-lane roadway, each having different percentages of heavy vehicles, one to two bus stops, and various headways and dwell times (with a set amount of entering volumes, number of access points, and turning volumes) showed that the impact of these vehicles on average arterial travel speed was much higher along the three-lane cross section than that of the four-lane undivided roadways.⁴⁰ Vehicles illegally passing stopped or slow-moving vehicles in the TWLTL did not appear to be a regular problem in the Iowa case studies. If this does occur, consider enforcement and education about the use of TWLTLs as appropriate.



Figure 13. Bus Loading Zone in Seattle, Washington
Photo Credit: City of Seattle

3.4 Bicycles, Pedestrians, Transit, and Freight Considerations

Embarking on a Road Diet presents an opportunity to dedicate more space to other roadway users and create a more balanced transportation system. For bicyclists in particular, Road Diets often include adding bicycle lanes to a street with little or no accommodation for bicyclists. The bicycle lane makes that route an option for many who would have been too intimidated to use the street previously. For pedestrians, Road Diets help reduce vehicle speeds and speed discrepancies midblock, making crossings easier and safer.⁴¹ Transit vehicles may find more space available for bus stops but may also face new challenges, such as blocking the single through lane along a corridor when stopped. Freight operators have special needs, especially for delivery of goods to businesses, that should be accommodated along the corridor.

Community members feel Road Diet conversions improve their quality of life. Iowa case study results found that pedestrians and bicyclists, along with adjacent land owners, often preferred the three-lane cross section. Conflicts between bicyclists, pedestrians, and vehicles can be reduced and the complexity of crossing maneuvers decreased. Road Diet effects on quality of life are discussed in more detail in *Road Diet Handbook: Setting Trends for Livable Streets*.⁴²

If corridors have existing or planned transit routes, the interrelation between transit operations (e.g., number of dedicated stops and frequency of trips) and other roadway users (i.e., vehicles, bicycles, pedestrians) should be assessed before determining whether or not to implement a Road Diet. The following sections present considerations and examples of how Road Diets may be implemented with pedestrians, bicycles, transit, and freight operations in mind.

3.4.1 Bicycle Considerations

Bicycle routes should be part of an overall network. One of the things to consider when determining whether a street is appropriate for a Road Diet is whether it fills in a gap in the overall network, or if it is part of a planned network. Many agencies, including the Los Angeles, Seattle, and Chicago DOTs, have sought out potential locations for Road Diets to complete the networks identified in their bicycle master plans.

If a formal bicycle network has not been identified, the roadway in question may still benefit from bicycle facilities. The street should first be studied to determine if there is any existing bicycle activity along it. If bicyclists are already using the roadway without a facility, significantly more bicyclists will likely use the route after a Road Diet. Whether or not there is existing activity, demand for a bicycle facility should be estimated. In cases where there are already bicycle facilities, a Road Diet may be an opportunity to further enhance the comfort of bicyclists by adding buffer space or converting a standard bicycle lane to a protected bicycle lane. Adding buffers may have additional benefits to other users as well. For instance, where the goal is to lower speeds, adding buffers to narrow travel lanes may accomplish that, which would be a benefit to pedestrians as well as bicyclists (see Figure 14).



Figure 14. Buffered Bicycle Lanes on Wabash Avenue in Chicago
Photo Credit: Stacey Meekins



Figure 15. Pedestrians Buffered from Traffic in Reston, VA
Photo Credit: Richard Retting

3.4.2 Pedestrian Considerations

The primary items for consideration for pedestrians are similar in nature to those for bicyclists – is there already a sidewalk available; what is the level of pedestrian activity; could the activity be expected to increase with the addition of facilities? If there are no sidewalks currently lining the roadway, designers should consider adding them with the Road Diet. In rural contexts, a sidewalk may not be necessary, but in these situations, a paved shoulder should at least be considered as a pedestrian accommodation. Along a section of Soapstone Road in Reston, Virginia, a

Road Diet converted the road from two travel lanes in each direction to one lane of travel and a bicycle lane in each direction, separated by a TWLTL. Pedestrians can be observed walking in the road at locations that lacked sidewalks near the transition into the three-lane section, as shown in Figure 15. In this case the Road Diet treatment provides a safety benefit by increasing the separation between pedestrians and motor vehicles.

The history of pedestrian crashes should factor into the decision as to whether to implement a Road Diet and what the components of the Road Diet ought to be. Crashes can be reduced by adding sidewalks or a shoulder, adding pedestrian refuge islands, and simply by slowing cars and reducing the number of lanes pedestrians must cross.

Pedestrian refuge islands should also be considered. The land use and the intended pedestrian environment will also factor into the decision as to whether to implement a Road Diet.

3.4.3 Transit Considerations

It is important to consider transit operations along a corridor being evaluated for a Road Diet, and also to consider the impacts of new transit needs that affect all road users. The conversion should not result in transit causing undue additional delay to general purpose traffic, though in many cases buses that stopped in the rightmost through lane before the conversion will stop in the only through lane after the Road Diet is installed. Bus stops are typically located along the curb with on-street parking removed, although some corridors may include pull outs to prevent buses from blocking through traffic. Pull-outs are often not preferred by transit operators due to difficulties with ingress and egress from the mainline.

Agencies should work with transit providers in the corridor to make sure their needs are being addressed. This is also a good time to have the transit provider look at bus stop spacing and location. Some stops could potentially be eliminated or moved from either near-side or far-side locations at intersections to provide a better pedestrian connection or to prevent buses from blocking the line of sight between pedestrians and motorists. If buses end up partially blocking the through lane after a Road Diet conversion, then vehicles may end up passing the bus in the two-way left turn lane. This issue can be remediated by applying physical barriers (e.g., channelizing devices along the outer edge line of the TWLTL) to prevent the maneuver, depending on the frequency and severity of the violation.

On 55th Street in Chicago, the City installed a Road Diet from Cottage Grove Avenue to Woodlawn Avenue. This corridor served as an existing transit route, and the City also wanted to incorporate bicycle facilities. Significant coordination with the Chicago Transit Authority was necessary to address the needs of the transit providers, while also accommodating the new bicycle lanes. Figure 16 shows how transit and bicycle lanes are both accommodated on 55th Street.



Figure 16. 55th Street in Chicago: Transit and Bicycles Share an Area at the Intersection (left); Transit Stop and Bicycle Lane (right); Photo Credit: Stacey Meekins

The City of Seattle works closely with transit providers in corridors where Road Diets are proposed. The transit agency reviews the proposed geometry and comments on needed changes to accommodate buses. In addition, Seattle has developed transit priority corridors with the following attributes:

- Bus priority at traffic signals.
- Queue jump lanes for buses at signalized intersections.
- In-lane bus stops for transit efficiency.
- Pedestrian safety treatments for transit users and on-time bus service.

Road Diet Effects on Seattle's Electric Buses

The City of Seattle has a fleet of electric buses that use overhead wires to provide eco-friendly and cost-effective services. For a proposed Road Diet project on Myrtle Street, King County Metro asked if the bus could continue using the same overhead wires with the new lane configuration. If so, then the Road Diet would be a low-cost solution. If not, it would be very expensive to move the wires. After testing the situation they determined that the buses could reach the wires, so the Road Diet project was installed.

3.4.4 Freight Considerations

There are instances where a corridor proposed for a Road Diet will need to accommodate truck movements. Freight operations on corridors are largely driven by demand-induced truck volumes, the proximity of alternative or parallel corridors, and the land use characteristics along or near the corridor. Freight operations can range from routine deliveries along the corridor to throughput of freight generated within and outside a region. When evaluating a corridor for a Road Diet, current and future freight operations should be considered.

While there is limited information available on freight considerations when compared to other areas addressed in this section, the Complete Streets guide published by The New York State Association of Metropolitan Planning Organizations (NYSAMPO) notes that, "Complete streets are often used to stimulate economic development, ideally as compact mixed-use with retail, commercial, and residential spaces. Designers must consider how stores and restaurants will receive deliveries, and where visitors and residents will park their cars without interfering with the needs of pedestrians, cyclists, or transit. Concepts include rear delivery access and strategically placed loading zones with time restrictions."⁴³

Road Diets can appropriately accommodate freight movements while also serving other transportation users if some key factors are considered during the planning process. The NYSAMPO has identified the following considerations that should be factored in when addressing truck movements in complete streets settings.⁴⁴

- 1) **Current Land Use.** Different uses generate different volumes and types of large truck movements. For example, restaurants may generate relatively high volumes of trucks, while lower density residential typically will not. Keeping the land uses along a corridor in mind will help agencies appropriately design Road Diets to meet local needs.
- 2) **Truck Size.** Corridors that serve or connect to larger industrial properties may serve larger trucks that cannot easily maneuver on narrower roads. By contrast, commercial retail stores and offices are often served by smaller unit delivery trucks.
- 3) **Delivery Parking Areas.** Some urban areas can accommodate deliveries via alleys or side streets, thereby avoiding trucks stopping on the main street to deliver. Other options include dedicated curbside delivery parking areas or off-street parking lots. Still other urban areas lack dedicated truck delivery parking areas, making it more difficult for delivery trucks to find parking and increasing conflicts for all users.
- 4) **Intersection Design.** Intersections where large trucks are often making turns should be designed with wider curb radii to accommodate truck movements. Intersections that experience few truck movements, few truck turns, and/or almost exclusively serve smaller trucks have lesser intersection turning radii requirements.

Engaging freight stakeholders early in the project planning and development process provides an opportunity to align freight mobility with the goals of a planned Road Diet. Outreach to stakeholders such as business owners, commercial and industrial property owners, and local carriers can be useful to identify potential issues with a Road Diet implementation. While engagement with freight stakeholders does not guarantee all conflicts will be resolved, it increases the likelihood of agreement on a Road Diet approach that balances freight mobility, safety, economic growth, and community needs to enhance quality of life.

3.5 Other Feasibility Determination Factors

The feasibility of converting a four-lane, undivided roadway to a three-lane cross section as a possible alternative along a particular corridor can be evaluated, at least partially, through the consideration of several feasibility determination factors (FDFs), as discussed earlier in this chapter. If the existing or preferred characteristics of the FDFs match the objectives or goals for the corridor under consideration, the Road Diet configuration should be included as one option in a more detailed alternative cross-section analysis and comparison.

Overall, Road Diet feasibility is tied to the ability to design the facility within the existing roadway cross section or right-of-way. However, in some cases, the corridor FDFs may require some mitigation to achieve a desirable outcome after a Road Diet conversion. The acceptability and impacts of this type of mitigation should be considered in general when determining the feasibility of the Road Diet option. A more detailed analysis would need to be completed when all feasible corridor cross section alternatives are evaluated and compared. Planning/policy, geometrics, safety, and operational details for Road Diets are discussed in other sections of this guide.

The factors discussed in this section include the following:

- Right-of-Way availability and cost.
- Parallel parking.
- Public outreach, public relations, and political considerations.
- Parallel roadways.
- At-grade railroad crossings.

The content of the discussion that follows was generally derived from *Converting Four-Lane Undivided Roadways to a Three-Lane Cross Section: Factors to Consider*. Other information has been added based on more recent research efforts and agency experience with Road Diet implementation and evaluation. Appendix B includes a summary table of feasibility factors, their characteristics, and a series of sample evaluative questions.

3.5.1 Right-of-Way Availability and Cost

Practitioners frequently consider the conversion of a four-lane, undivided cross section to three lanes when additional right-of-way or project funding is limited. Many Road Diet conversions can be completed within the existing curb-to-curb or roadway pavement envelope. However, changes in width at specific locations and occasionally additional right-of-way may be necessary (e.g., at intersections for right-turn lanes). A Road Diet conversion may be less feasible when these types of activities increase. In many cases a Road Diet conversion may only consist of changes in pavement markings. The inclusion of a Road Diet conversion as a feasible option for further consideration is more likely if there are limitations on available right-of-way.

3.5.2 Parallel Roadways

Road Diets can cause some diversion of traffic to parallel routes. A determination will be needed to establish whether the parallel routes would be desirable by through vehicle drivers on the corridor of interest. This can be established through discussions with those that travel the roadway or the application of appropriate simulation software. The distance between parallel arterials should also be considered. It is less likely that vehicles will divert to parallel routes that are farther away or that are just as congested. The other consideration is vehicles shifting to parallel non-arterial streets as "cut-through" traffic. Collecting before-and-after traffic data can inform the practitioner if this is occurring. Some community members may be more sensitive to this, so having data can help clearly define whether this is a problem. If there is an increase in cut-through traffic, traffic calming or other mitigation measures on parallel streets may be warranted.

3D Visualization

The use of 3D visualization may serve as an effective tool to help local stakeholders visualize a proposed Road Diet and assess impacts associated with the installation. Design visualization allows viewers to see the corridor from several vantage points, such as a commercial vehicle, a motor vehicle, a bicycle, or a pedestrian.

3.5.3 Parallel Parking

The existence of parallel parking (full-time or only during part of the day) and its impact on the feasibility of a Road Diet conversion should be evaluated. The difference in the impacts of the parking maneuvers on the four-lane undivided versus the three-lane cross section need to be compared. In addition, if a bicycle lane is added after the conversion, the interaction between bicyclists and vehicles being parked should be considered. Parallel parking can be and has been included along three-lane roadways.

3.5.4 At-Grade Railroad Crossings

An important consideration in the feasibility of converting four-lane, undivided roadway to three lanes is the existence of railroad crossings. Vehicles queued at an at-grade rail crossing will need to be served by one through lane after the Road Diet conversion. This could result in queues that are approximately twice as long. If this type of queuing is not acceptable along the three-lane cross section, it could affect feasibility. It is also important to consider at-grade crossings for railroads that closely parallel the corridor of interest. In the case of a nearby parallel railroad, the additional queuing due to a train would occur in the TWLTL in one direction and the through lane in the other direction. If operation of the converted corridor is needed while a train passes, the addition of a right-turn lane with adequate storage may be necessary for mitigation. The consideration of the signalization at these intersections (if it exists) also requires special attention both before and after the Road Diet conversion (if it occurs).

3.5.5 Public Outreach, Public Relations, and Political Considerations

According to the Delaware Valley Regional Planning Commission's *Regional Road Diet Analysis Feasibility Assessment*, "Education and outreach play a critical role in the success of a Road Diet. Many projects have demonstrated that public opposition can be strong in the early stages of a project. However, with committed stakeholders and an organized education and outreach program, the public can be better informed about the advantages and disadvantages of Road Diets."⁴⁵

Road Diet conversions have been implemented for more than three decades. Their implementation, however, can still be very challenging. This type of conversion is relatively unusual and new to most transportation professionals, local jurisdictions, and the traveling public. In some cases the consideration of or proposal for a Road Diet can lead to some concern due to unfamiliarity.

A temporary trial basis implementation of a Road Diet conversion has been used to address public concerns. This approach requires the restriping of the pavement within the proposed Road Diet area for a period of time before a determination is made to continue with a permanent Road Diet installation. Temporary pavement marking materials similar to those used in construction work zones can be considered for this purpose.

Consider signalization adjustments and any potential issues related to turning vehicles. During the trial basis time period, a series of before-and-after operational studies can be completed; some preliminary crash analysis can be performed; and surveys can be conducted among adjacent land owners, first responders, etc. If the trial yields positive results, consider implementing a more permanent Road Diet conversion. If it is determined that a Road Diet is not the best option for the corridor, the roadway can be changed back to its original lane configuration.

Michigan DOT (MDOT), with support from FHWA, has implemented Road Diets using the trial basis approach to appeal to communities where Road Diets may be feasible but are not embraced locally. In a few localities where citizens or local officials have objected to an MDOT-proposed Road Diet, MDOT has tempered its proposal with a guarantee: the agency will install the Road Diet on a trial basis, and will return the road to four lanes at the end of the trial if the community requests it. The evaluation criterion in this case is simple: what does the community want? As a result, many corridors have retained their Road Diet conversion with only two corridors being returned to four-lane undivided sections in Michigan. MDOT and FHWA believe that this is an effective approach to demonstrate the safety countermeasure to a community.

3.6 Case Studies: Feasibility Determination Decision-making

Several agencies apply general “rules of thumb” when first considering Road Diets. This section summarizes the factors and design parameters agencies should use when considering a Road Diet.

Seattle DOT considers the following facets of transportation operations, mobility, and safety in the selection of a Road Diet corridor: ⁴⁶

- Volume of traffic – up to 25,000 vehicles per day
- Vehicle speed
- Freight usage
- Travel time
- Number of collisions – all modes (motor vehicle, pedestrian, bicycle)
- Number of lanes
- Bus stops and routing
- Accessibility.

To guide Road Diet implementations, Seattle DOT developed the flow chart shown in Figure 17 to support its Road Diet decision-making process. First, the city calculates the ADT of the roadway segment in question, combined with signal spacing. In some cases this will lead to additional operational analyses of the entire corridor or key intersections. Depending on the results of this additional analysis, further modeling may be required (e.g., via Highway Capacity Software or Synchro). Those results may require modifications to the design to accommodate traffic. Once the simulation results are satisfactory, the Traffic Operations Manager and Signal Operations Manager must formally approve the Road Diet project to move forward.

Chicago DOT (CDOT) has started developing guidelines for when and where to implement Road Diets at the time of this writing. Crashes are the most important reason for them to consider a Road Diet, followed by traffic volumes that do not warrant the current number of lanes.

CDOT considers a roadway up to 15,000 – 18,000 ADT to be a good candidate for a Road Diet. However, the agency believes that the design hourly volume (DHV) may be a better parameter to use than ADT. A Road Diet would be feasible with a peak hourly volume of 1,000; at higher volumes, signal modifications may be necessary, and implementing left-turn phases is important where the traffic volumes are high.

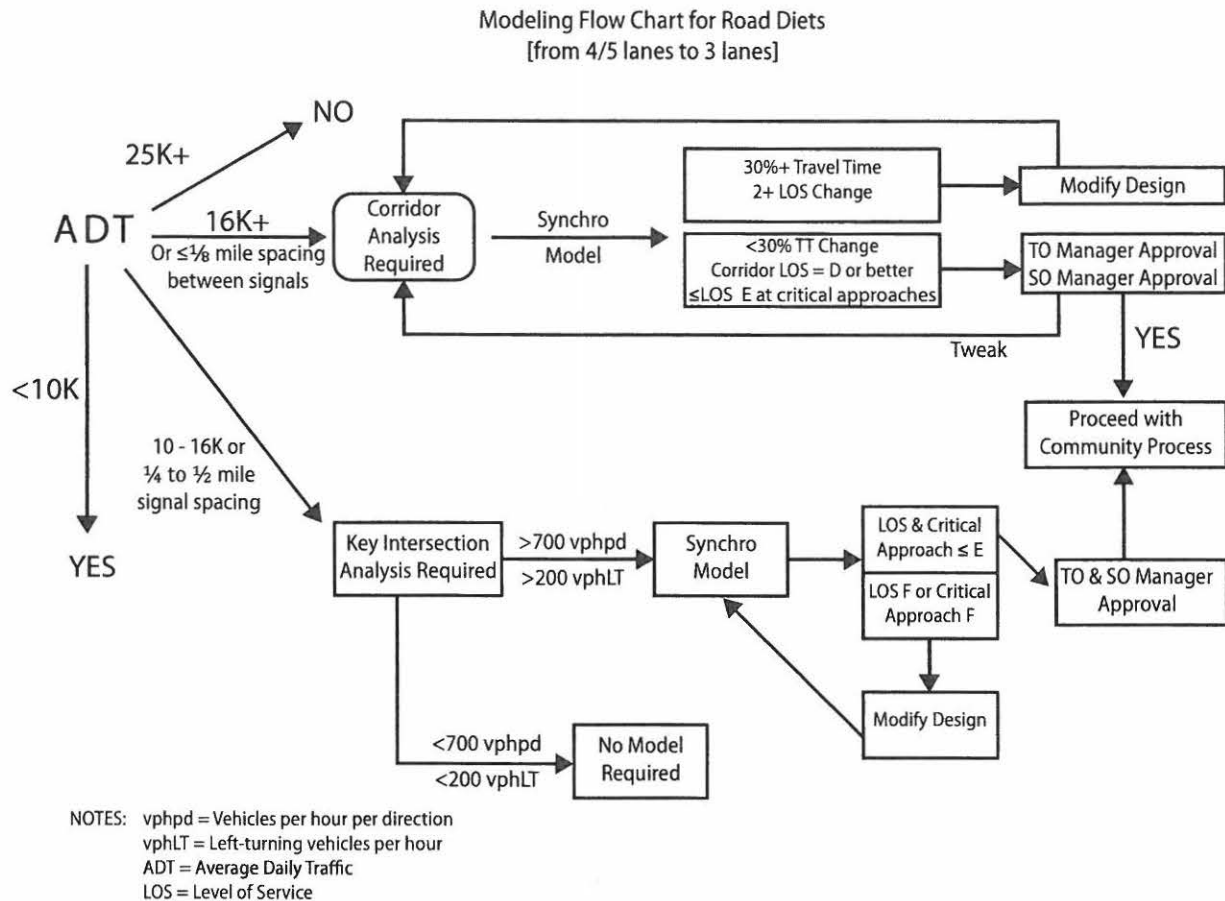


Figure 17. City of Seattle Modeling Flow Chart for Road Diet Feasibility Determination

Michigan DOT gives the following outline for guidance related to reducing lanes when considering implementation of a Road Diet:

1. Planning and Policy – Includes information on the purpose and need for the Road Diet, planning considerations for the local community and regional planning agency, Transportation Improvement Program (TIP) processes, etc.
2. Feasibility Determination Factors – Includes information regarding traffic volumes, traffic modeling, turning movements, level of service, crash analysis, etc.
3. Operational Criteria – Includes information regarding acceptable Level of Service (LOS) and improvements related to certain crash types.
4. Geometric Design Criteria – Describes maintaining proper geometrics using major road standards.
5. Systems Considerations – Includes considerations regarding parking, pedestrian and bicycle issues, school routes, etc.
6. Project Costs – Describes financial arrangements for cost-share projects.
7. Public Involvement – Describes the communication process prior to implementation.⁴⁷

Michigan DOT has chosen to view all existing four-lane, undivided roads as potential implementation sites. Many local Michigan agencies believe that a three-lane cross-section is the desirable road section compared to two-lane and four-lane undivided sections, and they actively work to identify which four-lane undivided roads are good candidates for Road Diets.

The City of Grand Rapids, MI takes a holistic view of Road Diet implementations by first identifying all four-lane, undivided facilities within their jurisdiction. For each road or segment identified, the agency then records and tracks traffic volumes, corridor use (whether a commercial route, incident bypass route, neighborhood traffic, school bus/transit route, etc.), and how the corridor operates under existing conditions.⁴⁸

The City of Lansing, MI has established the following minimum post-implementation lane width guidance:

- 11-ft. through lanes
- 5-ft. bike lanes⁴⁹
- 10-ft. turn lanes (left and right).

This guidance was established based on the city's experience; at some vehicle lane widths the roadway encourages side-by-side traffic, and some bicycle lane widths can encourage parking. Where undesignated pavement width exists, the city paints a buffer zone between the travel lane and bike lane, as shown in Figure 18. This provides a buffer between vehicles and bicycle traffic and helps allocate unused pavement without creating wide lanes.



Figure 18. Painted Buffer Between Through Lane and Bicycle Lane in Lansing, Michigan
Photo Credit: Jennifer Atkinson

The Genesee County Metropolitan Planning Commission (GCMPC) in Michigan is both progressive and aggressive in its approach to installing Road Diets. Although the first Road Diet in the GCMPC area occurred in 1990, the real boost to widespread implementation of Road Diets within this area occurred in 2009. The catalyst was the completion of a technical study in which the GCMPC assessed more than 140 miles of four-lane undivided road in its jurisdiction for potential conversion to three lanes. This study provided a summary of operating features and crash results for eight completed Road Diets in the area and offered a comparative assessment ranking the desirability of all remaining four-lane sections for Road Diet consideration.⁵⁰

The local agencies within the region first targeted routes with low ADTs that would allow for easy conversion and result in safety benefits; routes carrying 6,000 – 8,000 AADT were selected for the first conversions. After several conversions and positive public opinions of Road Diets, GCMPC began selecting implementation sites with higher volumes – up to 15,000 AADT.

Each year, GCMPC selects competitive road improvement projects submitted by its 32 local agencies. Potential Road Diet locations are scored and prioritized on criteria such as the following:

- Existing level of service;
- Lane width (existing and proposed);
- Number of driveway approaches within the Road Diet segment; and
- Crash types that may be mitigated by installation.

The GCMPC involves representatives from all modes of transportation, elected officials, and local agency partners. These stakeholders are involved from the beginning of the planning process and collaborate through the Road Diet installation. GCMPC feels that working together with these stakeholders gives a sense of project awareness and buy-in. It also helps to overcome obstacles or concerns that arise along the way, leading to smoother implementation. GCMPC encourages local agencies within their jurisdiction to restripe existing four-lane undivided segments as three-lane Road Diets as a part of their ongoing annual or bi-annual restriping plans. During the Road Diet study, GCMPC looked at several parameters to determine conversion suitability. Using these criteria, a 4-scale rating system was developed to measure compatibility of each road segment. These included:

- **Crash data.** Rates of traffic crashes for sideswipe, head-on, head-on-left-turn, angle, rear-end, and rear-end-left-turn crashes that are higher than the average for roadways with similar functional classification can be a good indicator for compatibility.
- **Lane width.** Four-lane roadways with lanes widths less than 12 feet may be good candidates as the narrow lanes can cause conflicts for passing vehicles.
- **Speed limits and operating speeds.** A Road Diet may be beneficial where traffic calming is needed.
- **Surface type.** A road that has concrete on the inside lanes and asphalt on the outside lanes (or the other way around) may be a poor candidate as the difference in pavement color may be used to distinguish travel lanes rather than the painted lane markers. This is especially true during inclement weather events or evening/morning driving as a result of sun glare.
- **ADT.** GCMPC considers ADT less than 10,000 feasible, between 10,000 and 20,000 potentially feasible depending on site-specific conditions, and more than 20,000 likely not feasible.
- **Number of traffic signals.** This is one of the many factors used to determine compatibility and is site specific.
- **Land use.** A Road Diet may be beneficial on corridors that have a lot of turning movements such as a block-style street grid, shopping areas, school zones, etc.

Overall, the efforts of GCMPC to install Road Diets have resulted in a number of installations. Four years ago, a Road Diet proposal from a local agency would have been unusual, but they are common now in GCMPC's annual call for projects. From the local agencies' standpoint, they feel that the extraordinary efforts of the planning agency and subsequent educational follow-up by GCMPC have facilitated implementation at the local level.

Based on recent interviews with practitioners, agency considerations for Road Diet implementation are shown in Table 3.

Table 3. Road Diet Implementation Considerations by Agency

Road Diet Implementation Considerations														
	Maximum Volume, ADT	Maximum Peak Volumes, DHV	Minimum Lane Width, ft.			Crash History	Vehicle Speed	Number of Lanes	Turning Volumes	Freight Usage	Presence of Transit	Presence of Bicycles	Travel Time or LOS	Accessibility
			Through	Left/Right	Bicycle									
Chicago DOT	•	•	•	•	•	•	•		•			•	•	
Seattle DOT	•					•	•	•		•	•		•	•
City of Lansing, MI	•		•	•	•									
Michigan DOT						•			•		•		•	•
Delaware Valley Regional Planning Commission	•								•				•	
City of Las Vegas, NV							•					•		•
Genesee County (MI) Metropolitan Planning Commission	•		•			•	•				•		•	

3.7 Funding Road Diets

Road Diets can be funded from a number of different sources based on the needs of the agency. Road Diets are typically eligible for Surface Transportation Program (STP), Highway Safety Improvement Program (HSIP) or other Federal-aid funds where data support the expenditure.

However, there are other benefits of Road Diets and other reasons for their installation, so the other funding sources available vary widely from Federal, State, and local sources. For example, the Seattle DOT (SDOT) has used funding from such sources as Safe Routes to School grants, Washington State DOT pedestrian and bicycle funds, and transit grants. The agency also monitors the city's road resurfacing projects to see whether upcoming streets scheduled for upcoming roadway overlay projects are good candidates for Road Diets. This allows Seattle DOT to use the annual paving program funds for some installations.

4 Designing a Road Diet

As with any project development process, practitioners designing a Road Diet should take into account the principles and practices that guide design decisions, including geometric design and operational design.

4.1 Geometric Design

Geometric design includes identifying details of the project in plan, profile, and cross section. It is necessary to apply the standard principles and practices of geometric design. Geometric designers are guided by standards and policies that include design criteria. The criteria serve as a guide to design and provide uniformity, but are not intended to be inflexible. Designers need flexibility to achieve context-specific needs and objectives. This is particularly true for Road Diet implementations. FHWA's *Flexibility in Highway Design* illustrates the different methods available to highway engineers and project managers to design roads that move people and goods in a safe, efficient, and reliable way while at the same time fully considering community values for the corridor and broader location.⁵¹ AASHTO's *A Guide for Achieving Flexibility in Highway Design* also shows how community and environmental issues can be integrated into decision-making throughout the project development process.⁵² Additional information about design flexibility pertaining to pedestrian and bicyclist facilities can be found in FHWA's August 2013 Bicycle and Pedestrian Facility Design Flexibility memo.⁵³

The practice of designing roads geometrically is evolving towards more performance-based approaches to analysis, where the expected transportation outcomes of geometric design decisions are quantified and used to support informed design decision-making. Performance-based analysis complements the ideas of design flexibility, context sensitive design, and practical design. Performance-prediction tools, such as the *Highway Safety Manual*, *Highway Capacity Manual* and others quantify how geometric design decisions impact measures of user accessibility, mobility, quality of service, reliability, and safety. A framework for conducting performance-based analysis is provided in the final report for NCHRP 15-34A, *Performance-Based Analysis of Geometric Design of Highways and Streets*.

4.1.1 Road Function and Context

The functional classification system described by FHWA's *Functional Classification Guidelines and Updated Guidance for the Functional Classification of Highways* often serves as a basis for establishing design criteria for a Road Diet project. AASHTO's *Green Book*, for example, includes chapters organized by functional classification, with arterials divided into freeway and non-freeway facilities (e.g., Chapter 5, Local Roads and Streets; Chapter 6, Collector Roads and Streets; Chapter 7, Rural and Urban Arterials; and Chapter 8, Freeways). Alternative road classifications also exist. These alternative classification systems guide designers towards establishing design criteria that are complimentary to location-specific context where the Road Diet is being implemented. For example, the *Smart Transportation Guidebook*,⁵⁴ jointly published by the Pennsylvania and New Jersey DOTs, more explicitly considers project setting by defining seven context areas from least to most developed:

- 1) Rural
- 2) Suburban neighborhood
- 3) Suburban corridor
- 4) Suburban center
- 5) Town/village neighborhood
- 6) Town center
- 7) Urban core.



CITY OF MOSES LAKE STAFF REPORT

To:	John Williams, City Manager
From:	Gilbert Alvarado, Community Development Director
Date:	April 12, 2016
Proceeding Type:	MOTION
Subject:	Moses Lake Veterinary Clinic Short Plat Deferrals

Legislative History:

• First Presentation:	April 12, 2016
• Second presentation:	
• Action:	Motion

Staff Report Summary

The Moses Lake Veterinary Clinic Short Plat is nearing completion. Staff has reviewed the Short Plat in accordance with MLMC 17.09, Short Subdivisions. As part of the Short Plat application, requests were submitted to defer sidewalk improvements and driveway improvement associated with the platting of the property. The area where the property is located is not developed with sidewalks at this time.

Background

The City Council approved a request to building on unplatted property for the Moses Lake Clinic improvements with the requirement that the property be platted. The proponent has submitted a Short Plat and in accordance with MLMC 17.09.050, Waivers, Deferrals, Deviations has requested to defer sidewalk improvements as required by the platting process.

Fiscal and Policy Implications

N/A

Options

<i>Option</i>	<i>Results</i>
<ul style="list-style-type: none"><i>Consider and approve the Short Plat deviation request</i>	<i>Short Plat moves forward and is recorded</i>
<ul style="list-style-type: none"><i>Consider and take no action</i>	<i>Short Plat does not move forward and the proponent must install improvements</i>

Staff Recommendation

Staff recommends that City Council approve the Short Plat deferral request in accordance with MLMC 17.09.050 and require a Covenant insuring future improvements of the infrastructure.

Attachments


A.	Senior Planner Memo

Legal Review

The following documents are attached and subject to legal review:

Type of Document	Title of Document	Date Reviewed by Legal Counsel
N/A		

To: Community Development Director

From: Senior Planner–Henning 

Subject: Moses Lake Veterinary Clinic Short Plat Deferrals
3918 E. Broadway

Date: April 4, 2016

This project initially requested deferral of the requirements to connect to sewer and water, but has since withdrawn those requests and started the process to connect. The remaining requests are:

1. Defer construction of sidewalks along East Broadway. The owner would sign a covenant for sidewalk improvements in the future.
2. Defer relocation of the driveway until sidewalks are constructed. The driveway does not meet standards for distance to the property line. The owner would sign a covenant to move the driveway.

Staff had no concerns about these deferral requests, and the Planning Commission recommended that these two deferral requests be approved, with the condition that the owner sign a covenant to complete these improvements in the future.



CITY OF MOSES LAKE
STAFF REPORT

To: City Council
From: John Williams, City Manager
Date: April 12, 2016
Proceeding Type: MOTION
Subject: Adopt Water System Plan

Legislative History:

- | | |
|------------------------|-----------------------------------|
| • First Presentation: | February 9, 2016 |
| • Second presentation: | April 12, 2016 |
| • Action: | Motion to adopt Water System Plan |
-

Staff Report Summary

The Water System Plan for the Moses Lake Water System is a living document that is required to be updated every 6 years and approved by the Department of Health (DOH).

Background

City staff has been working with the DOH since 2012 on this most recent update. All of the DOH comments have been addressed and they are ready to approve the Plan once it is adopted by the City Council. A copy of the Plan has been at the front counter and available for public review for the past 6 months. No comments have been received.

Fiscal and Policy Implications

The Department of Health requires the City's Water System Plan to be updated every six years to meet the requirements of the City's water system permit.

Options

<i>Option</i>	<i>Results</i>
<ul style="list-style-type: none">• <i>Approve a motion to adopt the updated Water System Plan.</i>	The Water System Plan will be approved by the DOH and the City can maintain a Green Operating Permit.
<ul style="list-style-type: none">• <i>Take no action.</i>	The Water System Plan will have to be adopted at a later date or the DOH will downgrade our operating permit.

Staff Recommendation

Staff recommends the City Council adopt the Water System Plan.

Attachments

A.	None
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Legal Review

The following documents are attached and subject to legal review:

Type of Document	Title of Document	Date Reviewed by Legal Counsel
<ul style="list-style-type: none">• None		