Department of Transportation & Public Facilities
Statewide Design & Engineering Services Division

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TO: Distribution

DATE: July 31, 2025

FROM: Lauren Little, P.E.
Chief Engineer

SUBJECT: Chief Engineer's Directive: Lane Reduction and Road Diet Analysis

This Chief Engineer's Directive outlines the process and considerations the Department will apply when evaluating lane reductions or road diet options as part of planned roadway improvements.

Background
Requests for lane reductions or road diets on DOT&PF-owned roads are often motivated by safety concerns, multimodal access goals, maintenance considerations, or observations of underutilized vehicle capacity. A systematic approach is necessary to ensure road cross-sections appropriately align with the full range of user needs and that any modifications support overall system performance, safety, mobility, and operational considerations.

Definitions
Lane reduction: The elimination of a through or auxiliary lane, often for the purposes of a buffer space, conversion to a bicycle lane, or other non-motorized space.

Road diet: The addition of a two-way left turn lane (TWLTL) by converting through lane(s) to the TWLTL[1].

Design year: Use the appropriate design year from the Highway Preconstruction Manual (HPCM), typically 20 years. If inside a Metropolitan Planning Area (MPA), the design year is the current Metropolitan Transportation Plan (MTP) end year[2].

1 https://highways.dot.gov/safety/proven-safety-countermeasures/road-diets-roadway-reconfiguration
2 The MTP is a 20-year planning document within an MPA. Alaska currently has three MPAs. Consult with Planning if unsure if your project is in an MPA.

Initial Screening
A corridor is a candidate for a road diet or lane reduction if it meets two or more of the initial screening requirements.

Capacity

- AADT on the roadway is below the Highway Capacity Manual (HCM) signalized highway generalized service volumes for 50% green time and level of service (LOS) C[3].
    - 2-Lane ~ 17,700-18,900 vehicles per day (vpd)
    - 4-Lane ~ 36,400-38,500 vpd
    - 6-Lane ~ 55,000-58,000 vpd

Safety

- Corridor crash rate, including intersections, exceeds the statewide average crash rate or 1 or more of the following exist:
    - The corridor has experienced 2 serious injury or 1 fatal crash involving a non-motorized user in the previous 5 years of available crash data.
    - The corridor has experienced 2 serious injury or 1 fatal crash associated with turning traffic in the previous 5 years of crash data.
    - Crash data for the previous 5 years of crash data indicate 30% or more of the crashes are related to turning traffic.
- NCHRP 562 Pedestrian crossing analysis for a mid-block location along the corridor (assuming a minimum 15 pedestrians crossing in the peak hour) indicates a "Yellow" or "Red" category treatment would be required.

Operational impacts

- The percentage of through traffic originating at one end of the corridor and reaching the downstream end of the corridor is less than 50%.
- Freight traffic is less than 10% of total traffic.

Maintenance impacts

- Space can be provided for snow or drainage storage

The initial screening is documented in a summary memorandum and kept in the project file.

Detailed Analysis Requirements
If a lane reduction or road diet request passes the initial screening, conduct detailed analysis prior to selecting the preferred alternative for the project.

Analyses will be performed using the current adopted Department standards using standard inputs, or accepted industry standards where the Department has not adopted a standard. Where modifications to standard inputs are used, document these modifications in the analysis memorandum.

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3 The lane configurations shown below are based on bi-directional travel (e.g. a 2-lane is 1 lane in each direction). If a one-way road is being evaluated, these volumes may not suffice. Perform HCM analysis to verify LOS C or better in the existing condition.

There are 4 elements that must be considered prior to deciding on a lane reduction or road diet.

1. Traffic Analysis
    a. Travel time change
    b. Intersection level of service
    c. Non-motorized evaluation

2. Safety Analysis
    a. Predicted crashes
    b. EMS response time

3. Maintenance Considerations
    a. Current estimated annual maintenance cost
    b. Predicted annual maintenance cost
    c. Changes to maintenance approach

4. Other Considerations
    a. De facto turn lanes
    b. Access management
    c. Alternate routes
    d. Consistency with State and local plans
    e. Stakeholder feedback
    f. Transit
    g. Freight
    h. Other safety countermeasures

National Freight Routes
If a lane reduction or road diet is proposed for a route on the National Highway Freight Network[4] ensure there are no operational changes for freight and any proposed changes align with the Department's freight plan. Specific elements that may impact freight include:

- Intersection geometry that affects turning movements and load accommodations
- Cross-section changes that reduce space for oversized loads

System Impacts
When multiple lane reductions and/or road diets are proposed in an urbanized area, additional analysis may be required to ensure the roadway system functions at an appropriate level of service (generally C or better for arterials, D or better for lower functional class roadways). Prepare a system-wide analysis for the road network as appropriate.

Documentation
Prepare a memorandum documenting the primary purpose of the lane reduction or road diet, the analysis results, and provide a recommendation on whether to pursue the lane reduction or road diet. Include the results of the system-wide analysis if conducted.

Ensure that recommendations are based on sound analysis and appropriate consideration of alternatives and mitigations. The memorandum should be written to state facts of the analysis

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4 https://ops.fhwa.dot.gov/freight/infrastructure/ismt/state_maps/states/alaska.htm

and not include language that could be interpreted as personal opinion.

Maintenance considerations and analysis will be revisited if project development timeline exceeds 5 years.

Criteria for Recommendation

The attached matrix provides a summary of applicable analysis criteria and relevant standards for evaluation. A lane reduction or road diet is not required to meet all goals to be implemented, but all factors must be considered in making the final recommendation.

In addition to the matrix, lane reductions and road diets will generally not be permitted on DOT&PF owned or managed roads as follows:

1. On any arterial where level of service (LOS) is predicted to be below LOS D in the design year after reasonable mitigation measures have been implemented in the analysis.
2. On any National Highway System route where LOS in the design year is degraded compared to the existing cross-section (e.g. goes from LOS C to D) or increases vehicular travel time through the corridor by 2 minutes or more.
3. On any corridor where signalized intersection delay in the design year is predicted to be LOS E or worse and delay is increased by 10% or more in the proposed condition. If modifications to intersections can be completed to retain capacity, include those in the project.
4. On any corridor where system-wide analysis indicates changes to DOT&PF owned or managed roads meeting the criteria of 1-3.
5. Proposals where clear safety and/or maintenance benefits are not supported by the analysis.

Attachments: Analysis Matrix
Memo Template

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