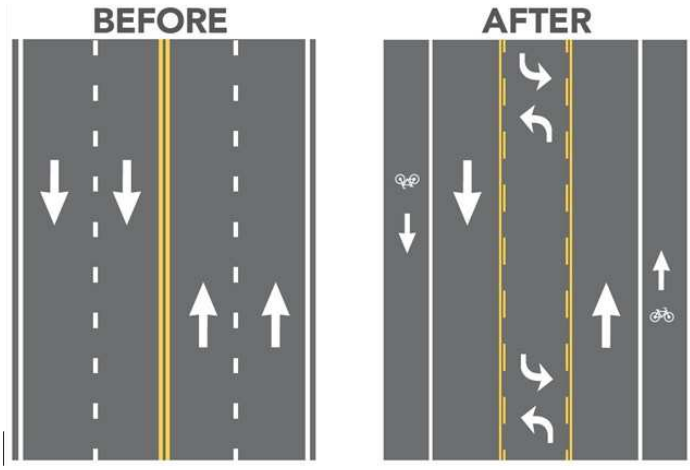
Lane Reconfiguration White Paper

Definition

A Lane Reconfiguration is a transportation planning technique whereby the number of travel lanes and/or effective width of the road are reconfigured in order to achieve systemic improvements. Recaptured space after the improvement typically includes the addition of left-turn lanes and bicycle lanes. The most common Lane Reconfiguration 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.

Classic Lane Reconfiguration



History

The focus of roadway projects during the 1950's and 1960's was on system and capacity expansion, not contraction. Safety studies conducted in the 1970's showed evidence of 4 to 3 lane conversion projects having reduced accidents without increasing traffic delays. One of the first known Lane Reconfiguration installations occurred in Billings, Montana in 1979. 17st Street West was converted from a four-lane undivided highway to three lanes, with the middle lane being a left-turn lane. Lane Reconfiguration increased in popularity in the 1990's, with installations happening in Oregon, Washington, Montana, Minnesota, Iowa and other states. The City of Medford has installed three classic lane reconfigurations, including 4th and 10th Streets in 2009 and East Main Street in 2013.

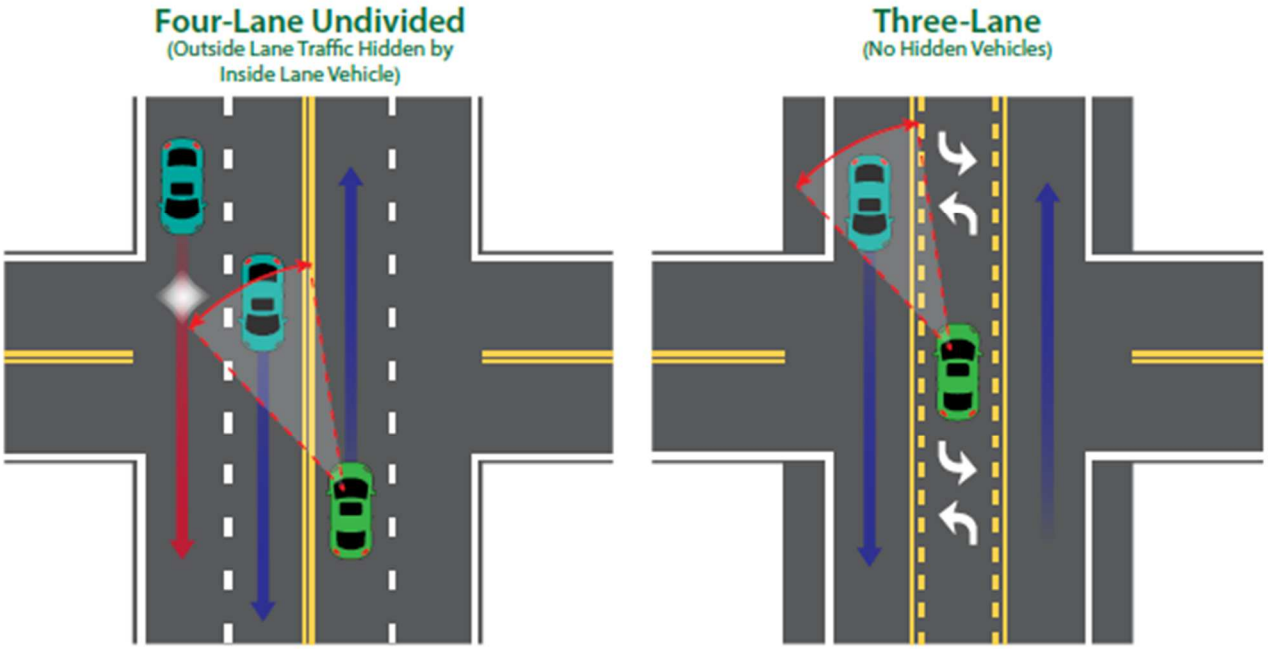
Medford's 10th Street Lane Reconfiguration

Why consider a Lane Reconfiguration?

Studies have shown Lane Reconfigurations can improve safety, convenience and the quality of life for all road users. Lane Reconfigurations are low cost when planned in simple overlay projects or reconstruction since the application of this technique consists primarily of restriping.

- **Improved Safety**
  1) Lane Reconfigurations reduce vehicle-to-vehicle conflict points. The left-turn lane allows for easier left turns with no hidden vehicles.
  2) Speed differential are reduced after a lane reconfiguration implementation.
  3) Studies indicate a 19 to 47 percent reduction in overall crashes.

No hidden vehicles



- **Operational Benefits**
  1) Separating left-turning traffic reduces delays at signalized intersections.
  2) Side-street traffic can enter the roadway more comfortably because there are fewer lanes to cross.
  3) Lane Reconfigurations provide more consistent traffic flow and less slow-and-go. This reduces the speed differential along the corridor.

- **Pedestrian Benefits**
  1. Lane Reconfigurations often include either bike lanes (sometimes on-street parking); this acts as a buffer between the motor vehicles and the pedestrians on the sidewalk.
  2. Three-lanes of traffic are easier for pedestrians to cross than four-lanes.
  3. Speed reductions associated with the improvements lead to fewer and less severe crashes.
  4. If pedestrian refuge islands are installed, pedestrians only have to be concerned with one direction of traffic at a time when crossing.
  5. Safer and more comfortable access to transit stops is an additional benefit.

Pedestrian refuge island can be placed in the middle turn lane

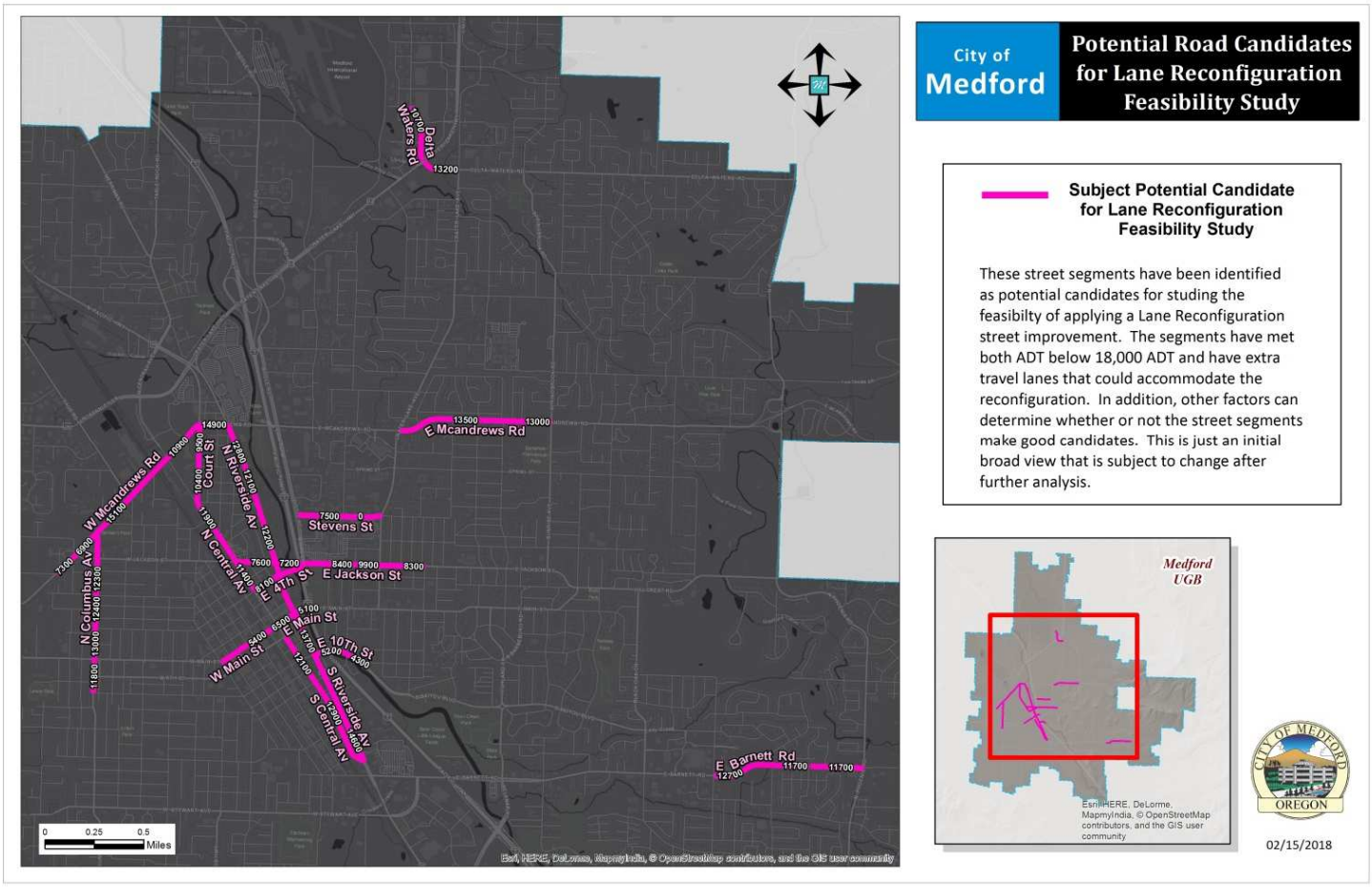
- **Bicyclist Benefits**
  1. The biggest benefit for bicyclists is the addition of bicycle facilities. With Lane Reconfigurations, formerly stressful streets can transform into comfortable routes, attracting many more bicyclists. Bicyclists are more visible and motorists know where to look for them when striped bike lanes are present.
  2. If space is available, buffered bike lanes offer an additional visual or physical barrier between bicyclists and motor vehicles. This comfort level enhancement can encourage increased usage.

Feasibility of a Lane Reconfiguration

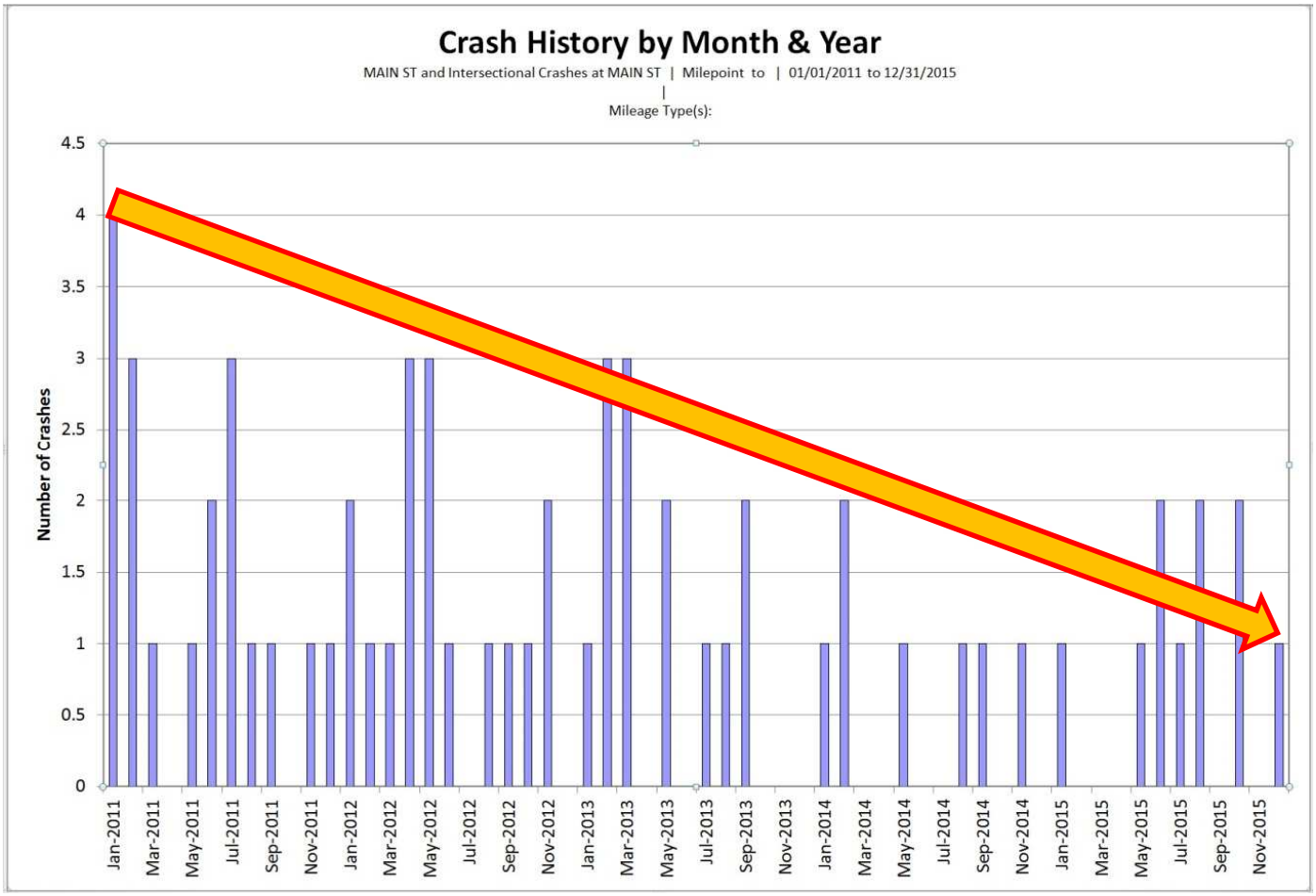
With the enormous benefits of reconfiguring streets, not all routes are appropriate or feasible for this type of improvement. There are a few factors to consider:

- The Average Daily Traffic (ADT) count is a good place to start when considering a lane Reconfiguration conversion. The Federal Highway Administration (FHWA) and the Oregon Department of Transportation (ODOT) recommend streets having counts lower than 20,000 ADT be looked at as potential candidates. Other agencies have the threshold higher or lower. Seattle looks at streets with ADTs up to 25,000, while Lansing Michigan looks at streets with ADTs up to 18,000.
- Intersections may determine the true capacity of a roadway. With the addition of turning lanes, intersections that experience a large number of turning vehicles can improve traffic flow.
- Significant vehicle turning due to adjacent land use in commercial areas and other activity centers could make Lane Reconfiguration conversion appropriate.
- Other factors are number of collisions of all modes of transportation (motor vehicle, pedestrian and bicycle), vehicle speed, number of lanes, freight usage, bus stops/routing, travel time and accessibility.

Potential Candidates for Lane Reconfiguration Feasibility Study



Medford's East Main Street Crash History since Lane Reconfiguration (east of the Bear Creek)



Medford Street Configurations Change

East Main Street Changes (Downtown/west of Bear Creek)

East Main Street - 1915

East Main Street - Today

East Main Street – Future?