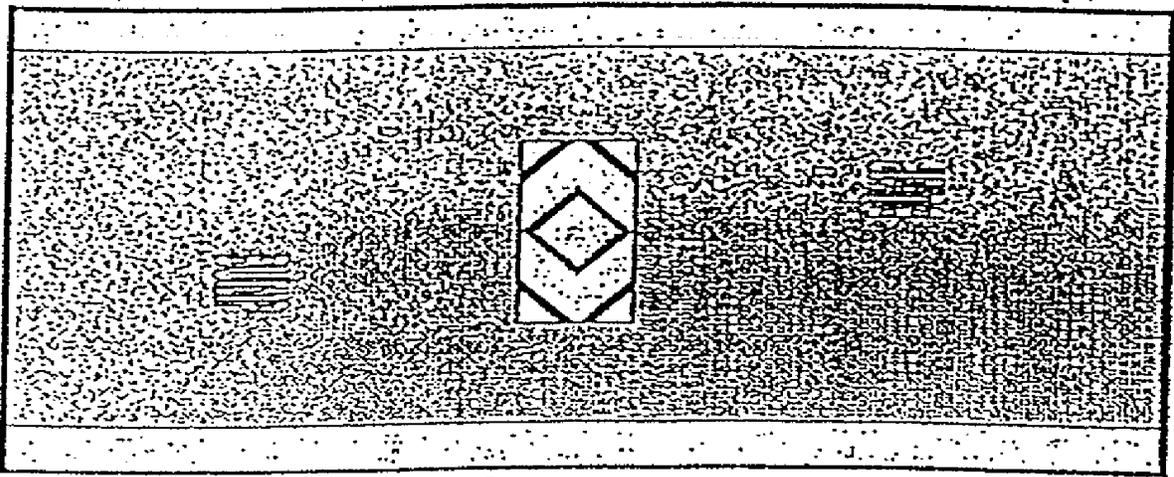




NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM



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INTRODUCTION TO THE KEIZER NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

The following people are primarily responsible for the development of this program.

Keizer City Councilors

Bob Newton, Mayor
Garry Whalen
Lore Christopher
Jim Keller
Jacque Moir
Craig Campbell
Jerry McGee

Keizer Planning Commissioners

Bill Wolf
June Abbot
Manny Martinez
Dick Inman
Jere Clancy
Dan Nelson
Bruce Anderson

Keizer Traffic Safety Commission

Mike Kirby, Chairman
Ernest Smyres
Mariella Dibble
Fredric George
Al Kramer
Randy Jackson

Keizer Staff Members

Rob Kissler, Public Works Director
Richard Woelk, Traffic Engineer

Neighborhood Traffic Management Element

As traffic conditions change in the future and the city grows, there is a greater potential for neighborhoods to experience cut-through traffic and speeding that negatively impacts neighborhood livability. Left unmanaged over time, the city could find itself responding to issues of livability inefficiently, case by case.

Neighborhood Traffic Management (NTM) has evolved over the past twenty years to encompass a wide range of measures and activities that can be effective in improving the livability of a neighborhood. While there is a wide range of issues that are commonly attached to NTM, the bottom line is how the speed and volume of vehicle traffic are addressed on a roadway.

Arterial congestion and lack of connectivity are the leading causes of neighborhood traffic infiltration. Whenever possible the City should attempt to identify the causes of congestion or lack of connectivity first, before looking to implement neighborhood traffic management measures. Solutions to congestion or lack of connectivity may be the best NTM measure.

Neighborhood traffic management measures are a means of addressing traffic safety issues on a city wide basis. As such, their application should not be limited to just local streets. NTM measures should be used to increase safety for pedestrians, bicyclists and motorists despite street classification. It should be recognized that not all NTM measures are appropriate for all streets. Where appropriate, NTM measures may be installed in neighborhoods to limit speed and volume of traffic; on collector streets to reduce speeding traffic; and on arterials to enhance neighborhood pedestrian safety. Often a combination of solutions may be required.

NEIGHBORHOOD STREET CLASSIFICATION

Recent work in the area of neighborhoods and their specific street needs provides an additional level of functional classification: *neighborhood routes*. Neighborhood routes are commonly used by residents to circulate into or out of their neighborhood. They have connections within the neighborhood and between neighborhoods. These routes have neighborhood connectivity, but do not serve as citywide streets. They have been the most sensitive routes to through, speeding traffic due to their residential frontages. In past plans, many agencies defined a minor collector or a neighborhood collector; however, use of the term collector is not appropriate for these neighborhood streets. Collectors provide citywide or large district connectivity and circulation. There is a level between collector and local streets that is unique due to its level of connectivity. Local streets can be cul-de-sacs or short streets with limited or no connectivity. Because neighborhood routes provide some level of connectivity, they can commonly be used as cut-through routes in lieu of congested or less direct arterial or collector streets which are not performing adequately. Cut-through traffic has the highest propensity to speed, creating negative impacts on these neighborhood routes. By designating these routes, a more systematic, citywide program of neighborhood traffic management can be undertaken to protect these sensitive routes.

A process was used to identify the neighborhood routes in Keizer by working together with the Traffic Safety Commission and City staff for input. Building off the Transportation System Plan, a map was prepared that reflects their input and identifies the neighborhood routes (Figure 1). A definition was prepared for the TSP of the neighborhood route, as follows:

Definition: Neighborhood routes are usually long relative to local, streets and provide connectivity to collectors or arterials. Because neighborhood routes have greater connectivity, they generally have more traffic than local streets and are used by residents in the area to get into and out of the neighborhood, but do not serve citywide/ large area circulation. Traffic from cul-de-sacs and other local streets may drain onto neighborhood routes to gain access to collectors or arterials. Because traffic needs are greater than a local street, certain measures should be considered to retain the neighborhood character and livability of these routes. Measures such as neighborhood traffic management are often appropriate (including tools such as traffic circles or other devices - refer to later section). However, it should not be construed that neighborhood routes automatically mean building something in the street to slow traffic. While these routes have special needs, neighborhood traffic management is only one measure, not the only measure. Table AI provides the inputs for a neighbor route.

**Table AI
Input to Basic Design Guidelines
Neighborhood Route**

Reference	General Description
Function	Circulation within a neighborhood to other neighborhoods or collectors/arterial routes
Typical Daily Volume	500 to 4,000 vehicles per day
Ultimate Traffic Design	Typically two lanes
Bicycles	Shared Roadway
Sidewalks	Yes
On-street Parking	Permitted
Access Control	Minimum street and, driveway spacing per Keizer Development Code
Minimum Right Of Way	60 feet

NTM PROGRAM

Neighborhood Traffic Management programs are built off the three "E's" of transportation.

- **Education:** By making people visibly aware of the problems, they can help by slowing down, staying on arterials/collectors, sharing with other people their concern regarding the negative impact of traffic and by using other modes of transportation.
- **Enforcement:** By focusing the Police Department's enforcement efforts to acknowledged areas of concern, community awareness of speeding problems can be increased.
- **Engineering:** There are several traffic calming measures that can be designed and built to reduce speeding and/or effect traffic volume. While neighbors near problem areas commonly promote these solutions, they can be expensive, create resentment among citizens and (if not done programmatically and with good judgment) can impact maintenance, liability, diversion, parking, noise, aesthetics, emergency response, utility vehicles, or other roadway users.

The process for the City of Keizer NTM program incorporates each of the "E's" at various stages of the plan. In developing the NTM plan several alternatives were considered. To be comprehensive, the NTM plan includes major components that work together to produce a complete NTM program. They include:

- **Process:** Outlines how an existing problem is brought to the City, what are the thresholds/warrants for defining a problem, steps toward a solution, prioritization of the project and monitoring of the benefit/impact.
- **Standards:** This provides a uniform way for **NTM** measures to be implemented in the City. It provides a process to minimize the impacts to safety and other user/stakeholders (as noted above maintenance, liability, diversion, parking, noise, aesthetic, emergence response, utility vehicles, or other roadway users).

Process

The process for assessing NTM issues includes many steps and decisions to assure the safest projects are developed for the City. The key steps include:

1. **Identification of a Neighborhood Problem:** This can occur several ways, from a neighborhood organization where applicable or by a petition of a minimum of 75 percent of the residents on a specific street.
Recommended Process: Issues of livability brought before the applicable neighborhood association or identified by petition where the project is located be forwarded to the staff of the Public Works Department. A form will be developed by the staff for the neighborhood

associations or petitions providing background regarding the problem. The form will request a statement of the problem and an area of concern (limits of the problem-A Street from X to Y Street). The staff will maintain a set of informational brochures on NTM matters for mass distribution through the neighborhood associations. Should a resident not be satisfied with the findings of the Public Works Staff, they may forward a letter of appeal to the Director of Public Works.

2. **Level I Action Plan:** Once a problem has been presented to the TSC by the neighborhood association where applicable or by petition has been filed with the Public Works Department, the first step will be to address education and enforcement related NTM measures and notify 100 percent of the affected properties and the applicable neighborhood association. To be eligible for this step, the project must be a two-lane street that has residential zoning for at least 75 percent of the fronting properties. This first step is taken to address concerns immediately, without substantial cost in analysis. Should significant safety issues be presented in Step 1, there is a separate process for addressing safety-related matters with the Public Works Department.

Recommended Process: *Notify the City. Police Traffic Enforcement team of the location and the nature of the request for speed enforcement. Enforcement efforts would include scheduling placement of the speed reader board trailer, requests for increased enforcement at problem areas, identified in Step 1 and linking enforcement and reader board placement. The city may need to purchase additional reader board trailers. Additionally, the city may want to pursue legislative changes to allow for photo radar speed enforcement in residential neighborhoods and use this as a Level 9 measure.*

3. **Analysis to Define the Problem.** Following Level 1, the affected residents affected working together with the neighborhood association where applicable, will determine if further actions are necessary. At this step, staff will conduct field reconnaissance and analysis to provide quantitative background regarding the street of concern. A data check list will be prepared that can include a 24-hour count of the traffic volume and speed, volume data adequate for a stop sign warrant check if appropriate in project limits, street width, presence of sidewalks, land use adjacent to, street location of schools or special activities (parks, senior housing, retail centers, major employment or institutional uses **within 1,000 feet**), general assessment of pavement condition and grade, on-street parking, functional classification identification, sight distance issues, fronting land uses and driveways (use parcel maps to sketch information in project limits and potential street projects in the area in next five to 20 years from TSP and CIP). This information will be used to do two assessments: 1) determine if threshold criteria are met for consideration of Level 2 NTM; or

2) if Level 2 thresholds are not met, what additional Level 1 measures should be considered.

Recommended Process: *City staff will make determination of whether Level 2 considerations are warranted. The thresholds for Level 2 consideration on neighborhood routes will include:*

Speed: *85 percentile speed five or more miles per hour above posted speed and,*

Volume: *Daily vehicle counts more than 800 vehicles per day, and,*

Cut Through Traffic: *Hourly estimate of 25 or more vehicles traveling between arterials.*

For arterial or collector routes, the thresholds will include:

Fronting Land Use: *More than 75 percent of the properties in the project limits have residential zoning*

Speed: *85th percentile speed 10 or more miles per hour above the posted speed zone, and*

Volume: *Daily vehicle counts more than **1,500** vehicles per day for collectors and **5,000** vehicles per day on arterials*

4. **Level 2 Prioritization:** At the point that thresholds have been met in Step 3 above the next step will be to prioritize the proposed NTM project. The reason for prioritizing the problem prior to developing solutions is to assure that staff, public and design efforts are expended where the greatest needs exist. A scoring system has been developed to assist with the prioritization process. Once the ranking process is completed by the Public Works Department, the project list will be entered into the City Capital Improvement Program process for funding and implementation. This is where the scheduling of a project will be identified and where other factors, beyond the ranking are considered.

Recommended Process: *The scoring system by functional classification is noted below in Tables 2,3, and 4 using the criteria that were ranked the most important by the Traffic Safety Committee. The Public Works Department will be responsible for ranking projects between functional classifications. A project list is forwarded for review in the CIP process; projects that meet the threshold criteria and commit to funding the NTM project privately will be given five additional bonus points for every 20 percent local funds up to 25 points. This additional scoring is intended to leverage public funds for NTM to get the maximum benefit for the public investment.*

**Table 2
Neighborhood Route Scoring Process**

Criteria	Point	Basis for Scoring
Speed	35	Using 85 th percentile 2 points for an 85-percentile speed 4 mph over posted speed
		PLUS
		3 points for every mph from 5 up to 10 mph over posted speed
		PLUS
		Using speed profile: 1 point for every percent of volume with speed at or over 10 mph of posted speed up to 15 points.
Volume	25	1 point for every 100 vehicles per day over 500 vpd
Cut Through Traffic	15	10 points if an identified cut through route between arterials can be mapped and observed in the field
		PLUS
		5 points if data is provided that indicates of the traffic on the project street that 20% or more is cut through between arterials.
Pedestrian Generators	5	5 points if within 500 feet of street that there are pedestrian generators (parks, elderly housing, retail commercial uses, high school, college or hospital)
Sidewalks	10	10 points if sidewalks in project area are discontinuous on both sides 5 points if one side of the street has continuous sidewalks 0 points if the street has continues sidewalks on both sides in project area
School	10	10 points if an elementary or middle school (public or private is within 500 feet of the project street
TOTAL SCORE	100	

**Table 3
Collector Scoring Process**

Criteria	Point	Basis for Scoring
Speed	50	Using 85' percentile 2 points for an 85 percentile speed 5 mph over posted speed PLUS 5 points for every mph from 6 to 10 mph over posted speed PLUS Using speed profile: 1 point for every percent of volume with speed at or over 10 mph of posted speed up to 15 points
Volume	10	1 point for every 1000 vehicles per day rounded up
Pedestrian Generators	10	10 points if within 500 feet of street that there area pedestrian generators (parks, elderly housing, retail commercial uses, high school, college or hospital)
Sidewalks	15	15 points if sidewalks in project area are discontinuous on both sides 0 points if the street has continuous sidewalks on both sides in project area
School	15	15 points if an elementary or middle school (public or private) is within 500 feet of the project street
TOTAL SCORE	100	

**Table 4
Arterial Scoring Process**

Criteria	Points	Basis for Scoring
Transit	20	20 points if project street is a public transit route with stops
Pedestrian Generators	25	25 points if within 500 feet of street that there are pedestrian generators (parks, elderly housing, retail commercial uses, high school, college or hospital)
Sidewalks	25	25 points if sidewalks in project area are discontinuous on both sides 0 points if the street has continues sidewalks on both sides in project area
Crossing	15	15 points if crossing distance for pedestrians is greater than 60 feet
School	15	15 points if an elementary or middle school (public or private) is within 500 feet of the project street
Trucks	10	1 point for every percent of traffic on project street that is trucks (peak hour count)
TOTAL SCORE	100	

- 5. Level 2 Project Development:** Using the **CIP** process for transportation projects in the City, those projects will go into project development within two years. This step involves extensive public involvement through the neighborhood associations and the project subcommittees involving the City Staff. A NTM toolbox was developed for the City of Keizer based on input of the Traffic Safety Committee to provide a standard set of measures that could be uniformly applied through the problems identified in Steps and 3.

**Table 5
Keizer NTM Tool Box**

Neighborhood	Collector	Arterial
Circle	Choker	Medians
On-street Parking	Speed Hump	Curb Extensions
Truck Restrictions		Roundabouts
Turn Restrictions		
Other Level 1 Measures		
		Medians
		Curb Extensions
		Roundabouts

Recommended Process.-- *The basic steps of project development will include the following:*

- *The project is within two years of funding through C1P.*
- *The project limits are defined in detail*
- *A neighborhood association meeting is held if applicable to discuss the project and outline the schedule of activities*
- *The sponsoring citizens for the project will complete an NTM petition form. This requires that signatures of support of 75 percent or more of all the fronting properties owners within the project limits for an NTM project. Without this support, the project will stop at this point.*
- *A project subcommittee is assigned that includes citizens and staff to develop conceptual design for the NTM project. A member from TSC will be assigned.*
- *A concept map will be prepared that outlines the types of measures anticipated and the possible alternatives (if any). The NTM project will use the Keizer Tool Box of NTM measures for neighborhood streets. Deviations from measures for which standards exist will require a separate process.*
- *Assessment of the NTM project will be undertaken including "fatal flaw" impact assessments. These are:*
 - *Potential diversion. Potential for diversion will be estimated for the project. If the anticipated diversion to another neighborhood or local street is over 150 vehicles per day, then residents from that street will be required to be added to the petition form. Diversion to arterials or collectors will not be considered an impact.*
 - *Impact to Emergency Routes. Obstruction measures will not be allotted on routes designated by the fire and police departments as primary response routes.*
 - *Multi-modal Access. Bicycle, pedestrian and transit access will not be negatively impacted by the NTM project.*
 - *Noise. The potential for noise impacts will be identified with selected NTM measures. A map will identify where additional noise might be anticipated.*
 - *Loss of parking. Where on-street parking is removed or added adjacent property owners will be notified in the development process.*
 - *Visual/Aesthetic Concerns. Samples of the visual character of the NTM measures selected will be reviewed in the public process.*

- *Maintenance. The effect of the NTM program on maintenance will be identified. This includes added costs for NTM measure maintenance (Landscaping) and impacts to maintenance activities.*
 - *Desired Effect. Using Table 5 as a guide, the selected measure should produce the speed and / or volume benefit desired.*
- *With the concept plan and assessment approved by the project subcommittee, the NTM project will be presented to the neighborhood association(s) for review and comment.*
 - *Final design will be completed and construction documents prepared.*
 - *Final approval from TSC*
6. **CIP Implementation/Funding:** Projects that have completed Step 5 will be advanced to the city for full funding, and implementation. As identified in Step 4, the highest rated group of projects will be forwarded to the CIP for funding.
- Recommended Process:** *The final steps for implementation will include:*
- *Local funding (if provided) Will be secured. Should the local funding not be available at the time of project implementation, the project will be integrated into the City priority list if applicable. Local funding may come from residents.*
 - *City staff will prepare a schedule for implementation and notify the neighborhood association*
 - *Construction will be completed*
7. **Monitoring:** Once an NTM project is completed, data collection will be conducted three months after completion to determine effectiveness and whether further refinements to the plan are required. Volume and speed data will be collected and summarized in a before and after report by City staff. If refinements are necessary, they will be identified following analysis of before/after data.
- Recommended Process:** *City staff will setup a standardized approach for before and after studies and tabulate performance data on all NTM projects implemented. Over time this research will be used to refine or upgrade the elements of the plan.*

Standards for NTM

Implementing NTM measures can impact several stakeholders that use public streets from utilities to garbage companies, delivery companies to school buses, from

emergency services to maintenance, from the postal service to the school district. The needs of all the stakeholders should be considered in any **NTM** measure. To best address the input of key stakeholders, it is recommended that a series of design standards be developed, reviewed and approved for inclusion in the *City of Keizer Street Design Standards*. This process will allow critical input and review by the stakeholders at one point, rather than having to seek each stakeholders input for each project that is contemplated.

The benefit of developing design standards is that **NTM** can be uniformly applied in Keizer. The standardization of **NTM** elements also helps keep the costs down. Most important, by going through a process of adopting the design standards with stakeholder input, the potential liability to the City is significantly reduced.

The development of standards can build off experience in Oregon with NTM and throughout the United States in tailoring a set of standards that meet Keizer's needs, As long as the standard of design are adhered to, the stakeholders can be assured of the character and nature of what may impact the street related to their operational needs.

The Manual of Uniform Traffic Control Devices (MUTCD) provides a reference for most traffic signing and striping needs. While the MUTCD does not address many of the NTM measures outlined in the tool box, many other cities and Keizer itself have working design experience with all of the measures, The following standards should be developed for the City of Keizer.

- Speed Humps (City of Portland has the most recognized standards in Oregon -also need spacing, criteria),
- Circle (Locations in Salem)
- Medians
- Street Width (the Portland region has extensive experience with 28 and 32 foot streets,
- Street Curvature (possibly 50 foot radius, reversing curves for curvilinear)
 - CurbExtensions

FUNDING

Funds for NTM projects would most likely come from the approved Capital Improvement program for the current year budget. Funding may be limited or not available in any given Year. NTM projects with private (local) funding will be able to proceed through the NTM process even if public funding is not available at the time.

There are several options for funding NTM measures in Keizer. They will include:

- Full funding through the CIP
- Partial funding through the CIP
- New voter approved funding dedicated to NTM
- Private interests funding NTM without public funds
 - Local residents pay cash

- Local residents agree to a local improvement district (not recommended due to the administrative costs)
- Private development funds NTM as mitigation measure of project approval or as an element of site plan design
- Full funding as a mitigation measure of a transportation project (public funds)

Cities of Keizer Neighborhood Traffic Control Program

Potential Traffic Management and Control Devices

Described below are some typical traffic management and control devices that might be employed in a neighborhood traffic control project.

Traffic Management Devices:

(Physical devices which change street characteristics and traffic patterns.)

Traffic Circles are raised landscaped islands placed in the center of an intersection. Their primary purpose is to reduce speed and separate intersection conflicts. Circles are especially effective in a series and may reduce through-traffic.

Curb Extensions narrow the street by widening the sidewalk or the landscaped parking strip. These devices make pedestrian crossings easier. They also narrow the pavement and provide a visual cue to motorists that they are on a non-arterial route.

Speed Humps reduce speeds on residential streets by requiring vehicles too slow to residential speed limits as the driver approaches the "hump." These devices are from 14 to 22 feet in length and approximately 3 inches high. The newer "hump" design is unlike the older "speed bump" design in that it allows vehicles to travel near the legal speeds on residential streets.

Diagonal and Semi-Diverters limit access to a street from one direction by placing a barrier diagonally across an intersection, separating the legs of an intersection or by blocking half the street. They are effective in reducing volume and allow more freedom of circulation within the neighborhood than cul-de-sacs. Both diagonal diverters and semi-diverters can be designed and installed to allow emergency vehicle access.

Median Barriers are used on arterials to prevent through-traffic or control turns onto neighborhood streets from arterials. Medians may also be used within a neighborhood to prevent non-local traffic movement through a street. Medians may be used effectively in combination with forced turn channelization and turn prohibitions.

Forced Turn Channelization allows traffic entering or exiting a neighborhood street to move in one direction only. This discourages a potential or existing through-traffic pattern.

Parking Revisions can modify traffic conditions by: either removing parking to facilitate turns and visibility or revising parking to slow traffic movement or add spaces, i.e., angle parking on one way streets.

Parking Bays with wider parking strips can be used to narrow street pavement or lanes, and enhance street tree planting areas with longer curb extensions.

Pavement Modification can be used to emphasize heavily-used pedestrian crossings or neighborhood entries. Thresholds, different paving surfaces, or raised pavement surfaces, are often used in combination with curb extensions.

Lane Demarcations such as striping, buttons, or curbing can be used to better define or separate travel lanes, bicycle lanes, parking lanes, pedestrian lanes, etc. Generally, narrower travel lanes slow traffic slightly, but can raise other safety or operational problems.

Traffic Control Devices:

(Standard regulatory and advisory controls, such as signage and signals.)

The Federal Highway Administration has established guidelines, criteria or warrants that must be met to install each device. These guidelines apply to all streets in Keizer.

Stop Signs are devices used to assign right-of-way at an intersection. Stop signs should not be installed, and are not effective, in diverting traffic or reducing speeding. They are installed at uncontrolled intersections with accident problems, visibility restrictions (such as buildings or topography); and/or where volumes are high enough that the normal right-of-way and is unduly hazardous. Variations include two-way stops and all-way stops. Each variation has certain guidelines that dictate its use.

Signal Modifications can discourage or prohibit non-local movement on neighborhood streets (Local or collector) to or from arterials. Generally, the longer the signal wait times between side streets and arterials, (e.g., double cycles, etc.), the less non-local traffic will short-cut through a side street.

Turn Prohibitions are used on arterials to prevent non-local traffic from using neighborhood streets (e.g., no left turn). These prohibitions may be in effect all day or just at weekday peak hours.

Signage Changes may be informational, (e.g., flashing school crossing signs, neighborhood entry signs), directional (e.g., "Arterial Route" signs), or regulatory (e.g., "No Trucks" signs).

Speed Limits are established by the State Speed Control Board, based on engineering criteria, local land use character, and existing speeds. Without physical changes to a street, a lower speed limit will not actually reduce speeds.

Rumble Strips are raised buttons placed on a street to warn of a hazard or cue drivers to another traffic control device; they may slightly decrease speed, but raise bicycle safety and maintenance concerns.

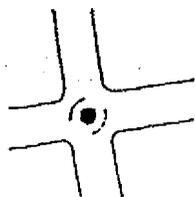
One Way Streets, where practical, may be used to discourage non-local traffic movements on neighborhood streets.

Clear Vision Areas are visibility zones at intersections and driveways. These areas are sometimes obstructed by fences, brush, shrubs, parked cars, etc., which the City can legally require to be removed or modified.

Other Techniques

Neighborhood Speed Watch is a method for neighbors to actually monitor and warn neighborhood speeders, using a City-loaned radar gun. Petitions for setting up a Neighborhood Speed Watch are available from the Keizer Engineering Division, Transportation Program.

Crosswalks at heavily used pedestrian or school crossings can be enhanced by visibility improvements, striping, warning signage, and by reducing the crosswalk distance.



TRAFFIC CIRCLES.

Description: Traffic circles are raised islands placed in an intersection. They are landscaped with ground cover and street trees. Traffic circles require drivers to slow to a speed that allows them to comfortably maneuver around them.

Purpose: The primary benefit of traffic circles is they reduce the number of angle and turning collisions. An additional benefit is they slow high-speed traffic.

Effectiveness: Traffic circles are very effective at lowering speeds in their immediate vicinity. Traffic circles are most effective when constructed in a series on a local service street.

Advantages	Disadvantages
<p>Effectively reduce vehicle speeds</p> <p>Improve safety conditions (for example, there are fewer left-hand turn crashes involving other vehicles)</p> <p>Visually attractive</p>	<p>Require some parking removal</p> <p>Can cause bicycle/auto conflicts at intersections because of narrowed travel lane</p> <p>Can restrict emergency or transit vehicle movement if vehicles are parked illegally near the circle</p>

Cost: Traffic circles cost approximately \$5,000 to \$15,000 each.

Parking Impacts: A minimum of 30 feet of curbside parking must be prohibited on the through street at each corner of the intersection.

Transit Service Impacts: Cheriote buses can maneuver around traffic circles at slow speeds provided vehicles are legally parked near the circles.

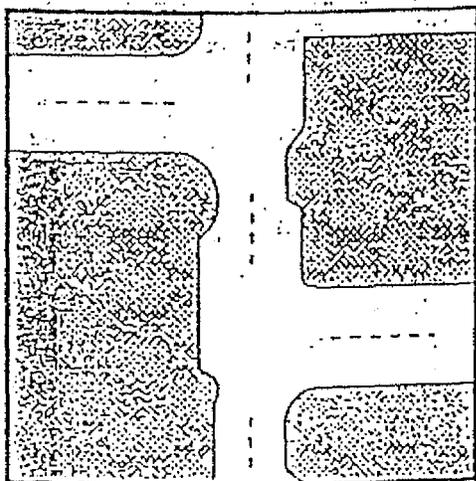
Emergency Services Impacts: Fire trucks can maneuver around traffic circles at slow speeds provided vehicles are legally parked near the circles.

Noise Impacts: Noise impacts are minimal. There may be some noise related to vehicles decelerating and accelerating near the circles.

Other Considerations: Well-maintained traffic circles can be very attractive. However, there are also a lot of traffic control signs and pavement markings associated with circles that are not so attractive.

CURB EXTENSIONS

Description: Curb extensions narrow the street by widening the sidewalk or the landscaped parking strip.



PURPOSE: These devices are employed to make pedestrian crossings easier and to narrow the roadway.

EFFECTIVENESS: Curb extensions effectively improve pedestrian safety by reducing the street crossing distance and improving sight distance. They may also slightly influence driver behavior by changing the appearance of the street. They can be installed either at intersections or midblock.

Advantages	Disadvantages
<p>Reduce pedestrian crossing distance and time</p> <p>Make pedestrian crossing points more visible to drivers</p> <p>Prevent vehicles from passing other vehicles that are turning</p> <p>May visually enhance the street through landscaping</p> <p>Do not slow fire vehicles</p>	<p>Require some parking removal</p> <p>May make it difficult to accommodate full bicycle lanes</p>

Cost: Curb extensions costs \$7,000-10,00⁰.

Parking Impacts: Curb extensions may occupy street area otherwise available for curbside parking.

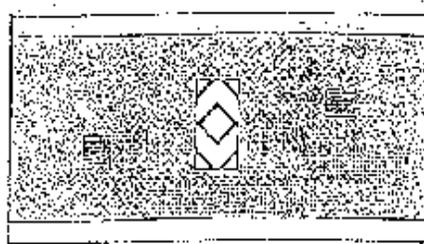
Transit Service Impacts: Curb extensions do not adversely affect transit service. Curb extensions at transit stops enhance service by moving the curb so riders step directly between the sidewalk and bus door.

Emergency Services Impacts: None.

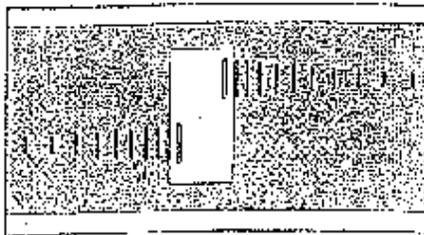
SPEED BUMPS

Description: ■

Speed bumps are asphalt mounds constructed on streets and spaced 300 to 600 feet apart. Portland uses two different shapes of speed bump according to the conditions and needs of a given street. On residential streets where speeds of 25 mph are desired, speed bumps that are 14 feet wide and ramp up to a height of 3 inches might be used. On streets where speeds of 30 mph are desired, 22 foot speed bumps might be used. On streets used by transit vehicles, are considered primary fire response routes by the Portland Fire Bureau or have exceptionally high volumes, the 22-foot bump may be selected instead of the 14 foot speed bumps.



14 Foot Speed Bumps



22 Foot Speed Bump

Purpose: Speed bumps are intended to reduce vehicle speeds,

Effectiveness: Fourteen-foot speed bumps are very effective at encouraging 25 mph vehicle speeds. Twenty-two-foot speed bumps are very effective at encouraging 30 mph vehicle speeds.

Advantages

Effectively reduce vehicle speeds
Do not require parking removal
Pose no restrictions for bicycles
Do not affect intersection operations

Disadvantages

Can possibly increase traffic noise from braking and acceleration of vehicles, particularly buses and trucks
Slows fire vehicles

Cost: Speed bumps cost approximately \$1,000 - 1,500 each.

Parking Impacts: .None

Transit Service Impacts: Like other vehicles, buses must cross a speed bump at reduced speeds. Experience shows that 22 foot speed bumps do not impede transit service or scheduling. Riding over speed bumps do not significantly bother transit riders.

Emergency Services Impacts: Like other vehicles, emergency response vehicles must cross a speed bump at reduced speeds. The speed bump design selected for any street takes into consideration whether it is used as a primary response route. The Portland Fire Bureau reviews all speed bumps proposed on primary response routes.

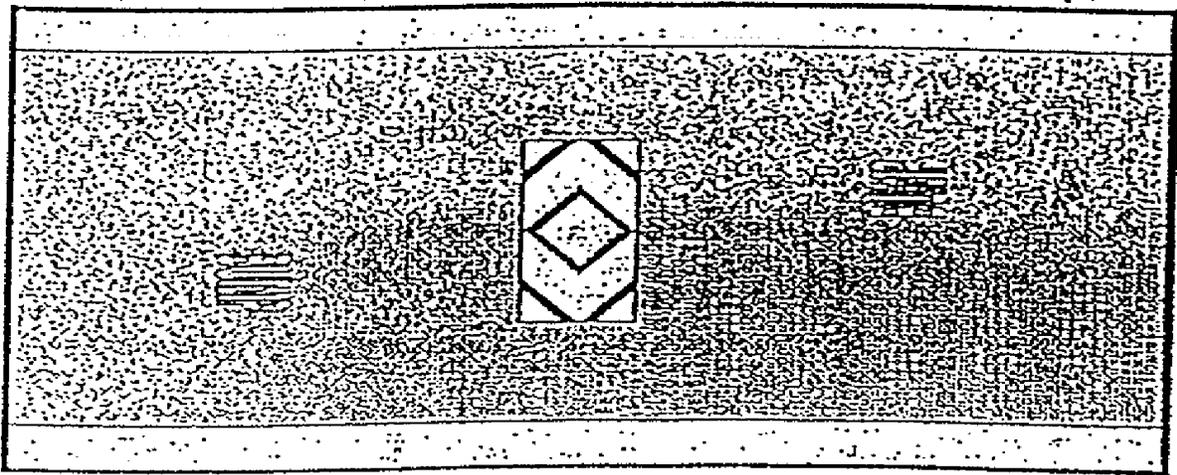
Noise Impacts: Speed bumps may generate some noise.

Other Considerations: Traffic volumes typically decrease slightly after speed bumps are constructed. Traffic on neighboring streets must be monitored for diversion.

Speed bumps are not constructed on grades greater than 8%.



NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

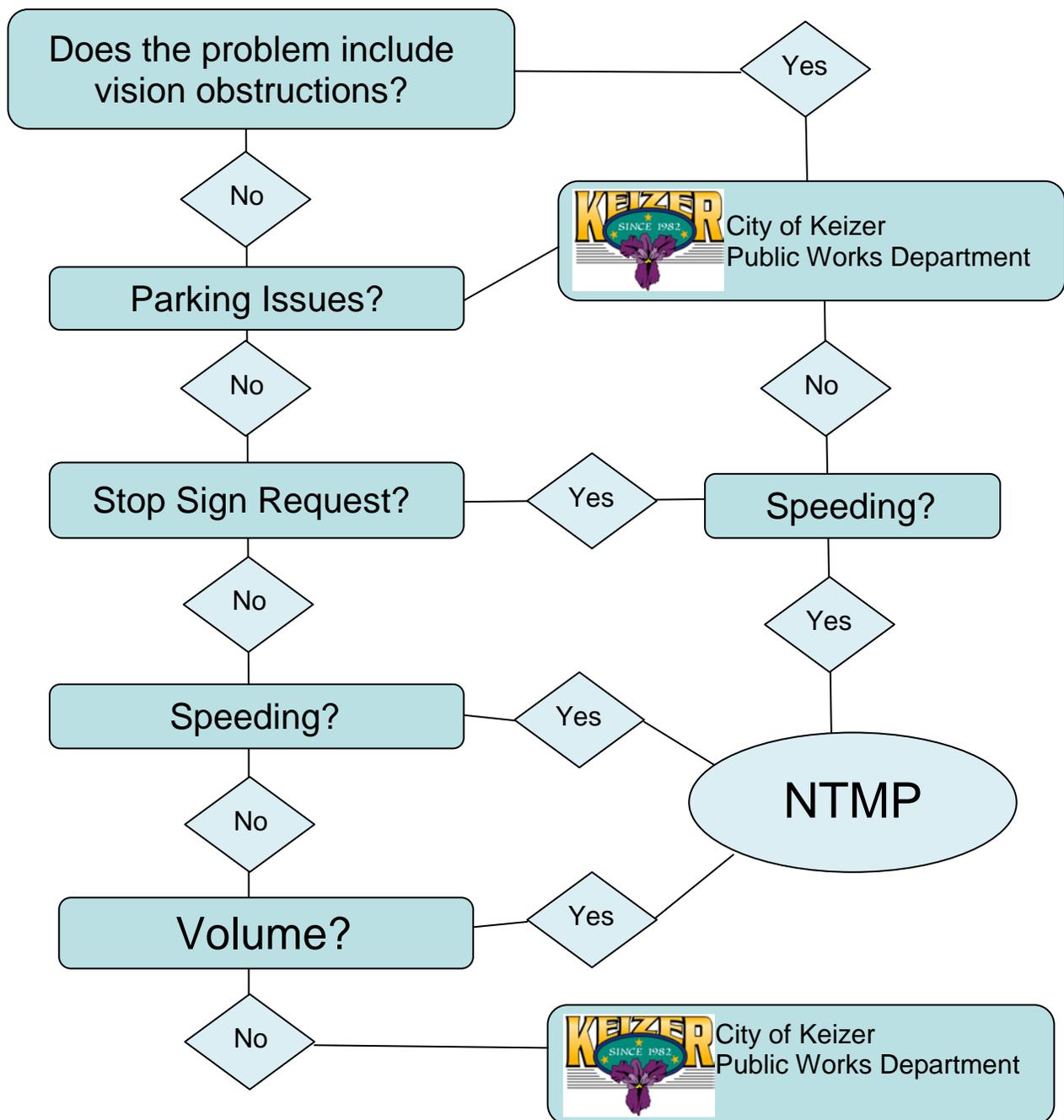


A minimum of 75% of the affected properties owner signatures must be obtained

Flowchart For Neighborhood Association Problem Assignment

The following information is provided to assist the Neighborhood Association and the citizens of Keizer in the appropriate process for the described problem.

Not all problems should be addressed through the Neighborhood Traffic Management Program (NTMP). Many issues should be referred directly to the Public Works Department. The following flowchart should help with determining the correct course of action.





Neighborhood Traffic Management Process (NTMP) Application

Section 1 (To be completed by Applicant)

Applicant Name _____ Daytime Telephone _____

Applicant Mailing Address _____ Evening Telephone: _____

Location of Problem: _____

(For intersections, list both streets. For roads, indicate name and problem limits. e.g. Long Avenue between Church & Olive.)

Description of Problem: _____

(Example: excessive speeding on street, high volumes, etc.)

Section 2 (To be completed by the Neighborhood Association or Applicant)

Street Classification: _____

(Designated in Keizer TSP)

of Through Lanes: _____

(On Primary Roadway)

Roadway Width: _____

(Width from curb to Curb)

Parking: _____

(Indicate which side or both)

Volume _____

(Attach Count Forms)

Speed _____

(Attach Speed Forms)

Survey _____

(Attach Survey Form)

Diagram:

Section 3 (To be completed by the Neighborhood Association or Applicant)

Level One Checklist

First Level One Recommendation:

Date Completed: _____

Second Level One Recommendation:

Date Completed: _____

Section 4 (To be completed by the Neighborhood Association or Applicant)

Neighborhood Association has determined that the following action be taken for this application:

Problem Resolved, Process Complete

Date: _____

Continue Level One Mitigation

NTMP Level Two, Refer To Public Works

Not NTMP Eligible, Refer to Public Works

Traffic Chair: _____

Association Chair: _____

Neighborhood Chair: _____

Instructions for Application

To complete the application for the Neighborhood Traffic Management Process (NTMP), follow these steps:

1. Fill out Section 1 of the Application form. It is important to include a brief but thorough description of the problem including the start and end points.
2. Submit the application form to the Neighborhood Association. Contact the Traffic Chairperson of your Neighborhood Association to find out the correct procedure for submission.
3. Once the Neighborhood Association has received the application, they will review it to ensure that the problem is appropriate for NTMP. If the problem is not appropriate for NTMP, you will be provided with contact information for the correct agency to notify.
4. If the Neighborhood Association determines the problem is appropriate for NTMP, they will provide you with the appropriate data gathering forms. Data regarding the traffic volumes, traffic speed and adjacent neighbor concerns must be gathered for the next step in the process. The forms provided by the Neighborhood Association will instruct and assist you in gathering this data.
5. Once all of the data has been collected, Section 2 of the application form must be completed. The street designation will be supplied by the Neighborhood Association. The remainder of the information in Section 2 is the responsibility of the applicant.
6. Upon completion of Section 2, the application form is returned to the Neighborhood Association with all of the appropriate documentation. The Neighborhood Association will review the data submitted and recommend a minimum of two Level One Mitigation Measures to be implemented by the applicant. The recommendations will be recorded on the application. Refer to the Level One Mitigation Measures information provided with this application for additional information about these measures.
7. If the problem is not resolved as a result of the recommended Level One Mitigation Measures, the applicant will notify the Neighborhood Association. At this time the Neighborhood Association will determine whether additional Level One Measures should be attempted or if the problem meets the criteria for Level Two Mitigation Measures. If the criteria for Level Two Measures are met, the application and all supporting documentation is submitted to the Transportation Section of the City of Keizer, Public Works Department for inclusion in the second step of the NTMP.
8. The NTMP Level Two form provided with this application provides an overview of the NTMP. The applicant and Neighborhood Association will

be informed of the progress of the application through the NTMP. This notification will be in the form of a postcard with pertinent information to three different phases of the NTMP. These phases are: once the problem has been analyzed and a Level Two Mitigation Measure, if any, has been identified; upon funding determination and upon the completion of the preliminary design.

CITY OF KEIZER – NEIGHBORHOOD TRAFFIC CONTROL PROGRAM PROCEDURES

