

## 3.0 Traffic Engineering

### 3.1 Traffic Signals

#### 3.11 Policy

Wisconsin state law, State Statute 66.0701, gives cities the power to, by local ordinance, provide that the cost of installing or constructing any public work or improvement be charged in whole or in part to the property benefited, and make an assessment against the property benefited in the manner that the governing body determines. The City of Madison has enacted Madison General Ordinances Section 4.09, which declares it the policy of the City to protect the health, safety and property of its citizens and promote the general welfare through the installation, construction or reconstruction of public improvements, including the signalization of intersections, and assessing all or a portion of the cost to benefiting properties.

It is the longstanding policy of the City of Madison to assess property owners benefitting from public improvement projects a percentage of project cost, and it is consistent with this policy and the City Ordinances to assess benefitting property owners for improvements associated with the signalization of intersections. The City has also found that, in determining how to best assess property owners who benefit from the signalization of intersections, the trip generation per household or per acre method is the most equitable way to apportion the costs of the signalization project as this method best captures the property's impact on the street system and overall traffic flow and safety concerns. This method estimates traffic trips generated by uses or proposed uses of benefited property and is a function of the density and intensity of development and apportions the project's costs by the parcel's share of total trips.

#### 3.12 Purpose

The purpose of this section is to provide a mechanism to identify property owners benefitting from intersection signalization and develop a procedure to reasonably and equitably assign project costs to the properties benefitting from the improvement.

#### 3.13 Scope of Benefits

- a. Traffic signals, when installed following proper Engineering procedures, can provide for the safe and orderly movement of traffic and pedestrians on the City's streets and public ways.
- b. Traffic signals can provide gaps in traffic at nearby driveways and streets, which provides for safe and orderly crossings.
- c. Traffic signals can improve conditions for pedestrians by creating gaps in traffic and providing safe and orderly crossings.

### **3.14 Identifying the Area of Influence**

As traffic signals provide benefits to properties well beyond the signalized location, prior to determining each property's assessment it is necessary to determine the signalized intersection's area of influence and identify the Assessment District for the improvement. It will be the policy of the City of Madison to assess property owners within the traffic signal's identified area of influence, also referred to as the Assessment District. Traffic Engineering Staff will determine the traffic signal assessment district and will consider the following:

- a. The assessment district will be determined based on the geographical layout of streets and properties. Staff will consider existing and future travel patterns associated with access provided by the new traffic signal. Staff will identify properties that can be reasonably shown to use the new signalized intersection or be benefitted by the creation of gaps in traffic at nearby street and driveway locations.
- b. The area of influence will generally encompass all properties within a  $\frac{1}{4}$  to  $\frac{1}{2}$  mile radius from the signalized intersection. The area of influence can be modified considering previous assessment districts and other factors such as nearby signalized locations, traffic patterns, alternate access routes, intersection spacing and geographic constraints.

### **3.15 Properties Benefited**

In determining how the project costs of the public improvement will be apportioned, it is necessary to determine which properties are benefited from the improvement within the Assessment District. In making this determination, properties will be considered based upon their whole, not in parts. Hence, a multi-family building on a single lot will be treated as one property for the purposes of determining the benefit received by the property as a whole as a result of the public improvement.

### 3.16 Cost Apportionment

Traffic Engineering (TE) Staff, with support from City Engineering will determine the total assessable traffic signalization project costs. Total assessable traffic signalization project costs will consider all features necessary to safely signalize and operate a signalized intersection, including intersection expansion, infrastructure necessary to communicate with the traffic signal intersection and system controllers. Costs that are not assessable as part of the signalization project but that are included within the scope of a larger public works project will be excluded from this calculation, although they may be otherwise assessable. Assessable traffic signalization project costs will be apportioned and assigned to each tax parcel in the Assessment District according to the following procedures:

- a. Using the latest Institute of Transportation Engineers (ITE) trip generation manual, TE staff will quantify generated traffic trips based on the current land use of each benefited property. If the property is vacant the City will estimate trip generation based on either the appropriate City Land Use Plan or an approved developers plan on file with the City.
- b. The City may apply distance factors of 0.25, 0.50, 0.75, and 1.00 as determined based on engineering judgment to account for differences in the relative benefit provided by the traffic control improvement to properties within the assessment district.
- c. The City will calculate the number of trips per property and then deduct 10 trips per tax parcel or household making up the property ( 10 trips being the equivalent amount of trips generated by a single-family household). However, no property may have more than 40 trips deducted per acre nor less than a 40 trip deduction total. The summation of the trip deduction as applied to all benefited properties within the assessment district area will be considered the City’s minimum share of the project cost.

Example Land-Use	Deduction.	Actl Trip Gen per Unit	Trips Gen.	Trips to Assess
4 Single Family/Acre	40 trip	9.8 trip/single family	39.2	0
10 Senior Condos/Acre	40 trip	3.5 trip/condo unit	35	0
10 std. Condo/Acre	40 trip	5.8 trip/condo unit	58	18
50 Apt Unit/Acre	40 trip	6.7 trip/Apt. unit	335	295
Grocery (46,000 sq. ft)	40 trip	0.1 trip/sq. ft.	4,600	4,560
Office (20,000 sq.ft)	40 trip	10 trips/1,000 sq. ft.	200	160

- d. The City will total all trips within the Assessment District, as well as by property. After applying the trip discount set forth in Sec. 3.16.c, each tax parcel’s percentage share of the total trips will be calculated and this percentage shall be applied to the total project

cost to determine the share of the total project cost that shall be assessed against the tax parcel. In making these calculations, each tax parcel shall be credited with its proportionate share of its benefited property's trip deduction (e.g., a 10 unit multifamily on one acre will receive a 40 trip deduction, with each unit then receiving a 4 trip deduction).

### **3.17 Commercial Driveway Signalization**

When traffic signals are required or requested for commercial driveways, the following shall apply:

- a. For any traffic signal installed for the sole purpose of providing access to commercial properties, those properties will be assessed 100 percent of the project cost.
- b. A commercial driveway signalized as an incidental part of the signalization project will be assessed a minimum 25 percent of the total project cost.