

# BINGHAM COUNTY

## APPROACH SPACING STANDARDS



October 2023

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## 1.1. ROADWAY DEFINITIONS

Arterial	Major roadways that are intended to primarily serve through traffic so access to abutting properties is restricted.
Collector	A street or highway that provides for traffic movement within neighborhoods of Bingham County and between major streets and local streets and for direct access to abutting property. <i>(Bingham County Road Standards 2019)</i> Like Major Collectors, except provide local circulation over short distances.
Highway	The entire width between the boundary lines of every way publicly maintained when any part is open to the use of the public for vehicular travel, with jurisdiction extending to the adjacent property line, including sidewalks, shoulders, berms, and public rights-of-way not intended for motorized traffic. The terms “street” or “road” are interchangeable with highway. <i>(Bingham County Road Standards 2019)</i>
Local Street	A street that provides for direct access to residential, commercial, industrial, or other abutting land for local traffic movements and connects to collector and/or arterial streets. <i>(Bingham County Road Standards 2019)</i>
Major Collector	Roadways that provide local circulation over moderate distances and link arterials to local streets
Private Road	Shall mean a road that is not dedicated to the public and not a part of a public highway system. <i>(Bingham County Road Standards 2019)</i>
Public Right-of-Way	Shall mean any land dedicated and open to the public and under the jurisdiction of a public highway agency where the public highway agency has no obligation to construct or maintain said right-of-way for vehicular traffic. <i>(Bingham County Road Standards 2019)</i>
Public Street	Shall mean a road, thoroughfare, alley, highway, or bridge under the jurisdiction of a public highway agency. <i>(Bingham County Road Standards 2019)</i>
Residential subdivision	Shall mean a subdivision consisting of five (5) or more residential lots, of less than one (1) acre, in a Residential Zone. <i>(Bingham County Road Standards 2019)</i>
Road	Roads will be identified as principal arterials, minor arterials, major collectors, minor collectors, local roads and subdivision roads on the Official Long Range Transportation Map or Functional Class Map of the county. <i>(Bingham County Road Standards 2019)</i>
Road Frontage	The boundary between a plot of land and the road onto which the plot of land fronts. <i>(Bingham County Road Standards 2019)</i>
Roadway	That portion of a highway that is improved, designed, or ordinarily used for vehicular travel, exclusive of sidewalks, shoulders, berms, and other portions of the public right-of-way. <i>(Bingham County Road Standards 2019)</i>
Street	Shall mean a road, thoroughfare, alley, highway, or a right-of-way which may be open for public use but that is neither part of a public highway system nor under the jurisdiction of a public highway agency. <i>(Bingham County Road Standards 2019)</i>

Subdivision	Shall mean a tract of land divided into five (5) or more lots, parcels, or sites of one (1) acre or more for the purpose of sale or building development, whether immediate or future, which is not a bona fide division or partition of agricultural land for agricultural purposes. <i>(Bingham County Road Standards 2019)</i>
Traveled Way	The portion of the roadway for the movement of vehicles, exclusive of ditches and roadside areas. <i>(Bingham County Road Standards 2019)</i>

## 1.2. ACCESS MANAGEMENT

One of the most fundamental concepts in access management is that movement of traffic and access to property are mutually exclusive; no facility can move traffic very well while providing unlimited access at the same time. A hierarchy of road types is needed to delineate which roadways will focus on moving traffic and which roadways will focus on property access.

Access management attempts to balance good mobility for through traffic with the requirements for reasonable access to adjacent land uses. Signs of poor access management include a high number of accidents as well as higher traffic congestion due to vehicular access at multiple locations. An effective access management program can greatly reduce crashes, increase roadway capacity, and greatly reduce travel time and delays.

## 1.3. IMPORTANCE OF ROAD STANDARDS

The design of a roadway network attempts to transport all vehicles safely and efficiently, to their desired destinations in the least amount of distance and time. The goals of the County are SAFETY and MOBILITY. This is accomplished by classifying roads with different purposes: Local roads (to access destinations directly; lower speeds and volumes), Collector roads (to connect local roads with Arterials, Highways, and Interstate roads; higher speeds and volumes), Arterials, Highway, and Interstates (high speed roads with high volumes of traffic). These roads have different functions and maintain their purpose by regulating the capacity and number of approaches. In general, Arterial roads have the very limited access frequency, the highest speeds, and highest volumes. Local roads have the highest access frequency, low speeds, and low volume. Collectors fall in between Arterial and Local roads with limited access, moderate to high speeds and moderate to high volumes. When this classification system is used correctly, the transportation system will perform efficiently and safely.

## 1.4. SPEED CORRECTION FACTOR

Speed of traffic is the main controllable component of a transportation design. Speed influences the total distance required for a vehicle to slow down, stop, or avoid an obstacle. To ensure the approach spacing is sufficient for the actual speed that most vehicles are traveling with a given speed limit an evaluation of actual speeds traveled on the roadway network was completed to verify if a correction factor will be required to accommodate the safety of the general traffic of the system. Current traffic data was compiled and analyzed including all traffic counts from 3/20/2019 to 12/10/2020. The data of traffic counts relating to road speed limit, ADT, and the 85th Speed Percentile were averaged and compiled in **Table 1**. From this data, it was determined that no correction factor was required in further spacing calculations since 85 percent of traffic travels relatively close to or below the posted speed limit.

*Table 1 - Bingham County Summary Speed Data*

Roadways with Posted Speed Limit (mph)	Average of Traffic Counts 2019-2020	
	85% Speed	ADT
35	41.0	703.4
40	35.5	1074.5
45	45.2	1358.3
55	50.6	710.3

## 1.5. SAFETY CONSIDERATIONS

**Safety** is always the **highest priority** in a transportation system. Minimum spacing distances presented in this document are based on safety concerns for each roadway classification and posted speed limit.

### 1.5.1. Pedestrian Considerations

On local roads and subdivisions, considerations were made to ensure the safety of pedestrians at the posted speed limit. This can be seen by lower minimum spacings for roadways with lower classifications and lower posted speed limits. It is more likely that there may be an object to avoid in the roadway such as pedestrians in more developed areas with roadways classified as subdivision or local roads with lower speeds.

### 1.5.2. Sight Triangles

A sight triangle, by definition, is a triangle at an intersection, formed by the two roads or rights-of-way and a third line, which must be kept clear of obstructions such as hedges, trees, fences, etc. to allow people on one road to see cars approaching on the other. Sight triangles ensure that there is enough distance for all traffic to recognize oncoming threats, safely stop before an accident occurs with cross traffic, safely merge into cross traffic, or cross an intersection. The calculations for approach spacing were calculated utilizing the American Association of State Highway and Transportation Officials' (AASHTO) derived values for average reaction time, height of passenger car, length of car, and deceleration/ acceleration rates.

State of Idaho Code Section 49-221 states that a 40-foot by 40-foot sight triangle be maintained by the property owner as a clear zone at each approach. The Bingham County Road Standard upholds the Idaho State Code in this regard and is referenced in the Bingham County Roadway Standards Manual. The current version of this manual can be found on the Bingham County website.

The minimum spacing allowed between driveway approaches was derived. This number was adjusted for local roads as a minimum of 50 feet plus a safety factor buffer based on the road's speed limit. These spacings are listed in **Table 2**.

*Table 2 - Local Road Approach Spacing*

Posted Speed (mph)	Required Min. Approach Spacing in both directions of traffic (ft.) *
25	55
30	55
35	60
40	60
45	60
50	65
55	65

\*Distance measured from edge of approach to edge of approach (from point of tangency of approaches). Labeled as “Minimum Approach Spacing”. Approaches are to be 30-foot wide max, Bingham County Code Section 7-3-3 and Bingham County Road Standard Section III-H.

### 1.5.3. Stopping Sight Distance (SSD)

Stopping Sight Distance, as defined by AASHTO, is the required minimum distance required by a car to react and stop before a road obstruction. On roads with higher speeds, this distance increases and is recommended to be included in determining approach distance spacing. Many other safety calculations at state and federal levels are based on SSD. Distances were calculated using a 2.5 second reaction time and a 11.2 ft/s<sup>2</sup> to calculate the required SSD as recommended by AASHTO (Section 9.5.3.2 of *A Policy on Geometric Design of Highways and Streets*). Stopping sight distance was utilized in calculations for approach spacing distances.

## 1.6. INTERSECTION SPACING

### 1.6.1 Major Intersection Spacing

Major intersections are intersection of arterial and collector roadways. Spacing is based on a balance of limiting the major conflict points along the roadway and providing enough connectivity for vehicles and pedestrians to cross the roadway. Driveway approaches are highly discouraged on arterials and limited access on collectors.

### 1.6.2 Minor Intersection Spacing

Minor intersections are the intersection of collectors, local roads, and approaches. Intersection spacing should provide abundant crossing opportunities for vehicle and pedestrians. Vehicles should operate at lower speeds to benefit pedestrian and bicycles, but lower speeds also allow for reduced intersection spacing needs. Table 3 shows the required spacing between intersections.

**Example Street Network**

-  Stop Sign
-  Major Arterial
-  Highway
-  Minor Arterial
-  Major Collector
-  Minor Collector
-  Local Road
-  Bike/Pedestrian Path

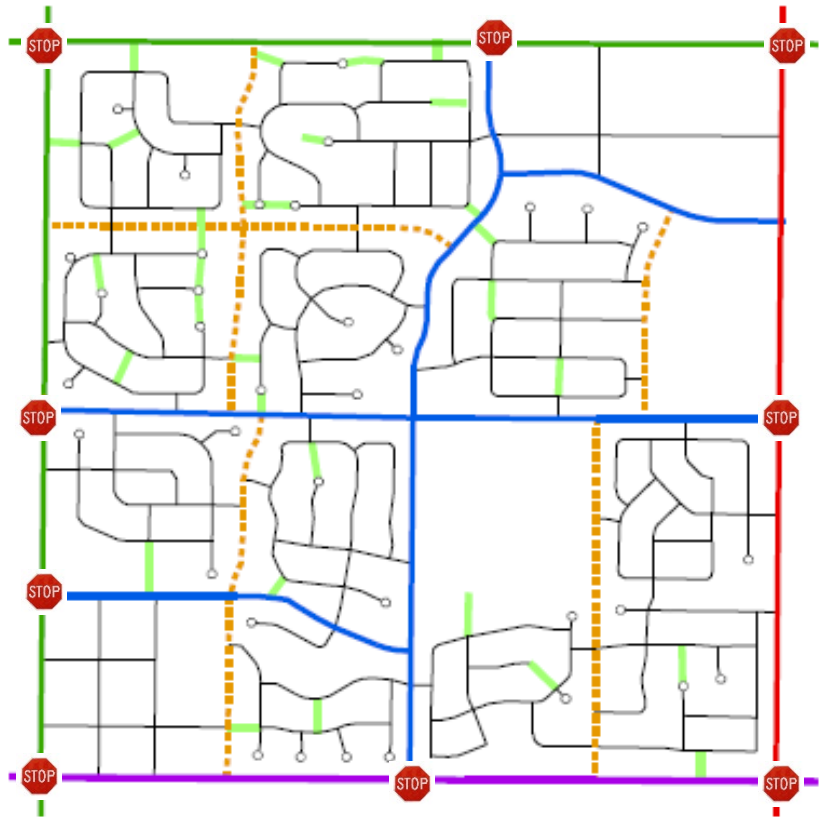


Figure 1 - Example Square Mile of Network

Table 3 - Required Spacing Between Intersections (ft.)

Speed (mph)	Functional Classification					
	Subdivision	Local (400 ADT)	Minor Collector (150-1110 ADT)	Major Collector (300-2600 ADT)	Minor Arterial (1,500-6,000 ADT)	Other Principal Arterial (2,000-8,500 ADT)
25	190	190	190	190	190	190
30	190	190	190	190	320	320
35	190	190	190	190	390	450
40	---	300	300	300	445	620
45	---	300	300	300	500	860
50	---	300	300	300	555	1125
55	---	300	300	300	610	1320

\*Bingham County Sight Distance Triangle and Access Requirements must be maintained for all driveway approaches and intersections

## 1.7. APPROACH SPACING

This section provides criteria for access approach spacing. The spacing in **Table 4** and **Table 5** are dependent on the functional classification of the governing road and posted speed limit. The spacing is a minimum distance, additional spacing (in most cases) will increase the safety and mobility of the roadway.

An applicant may challenge the sight distance requirements by submitting an official request to the Public Works Director. At the discretion of the Public Works Director, he/she may approve the approach spacing or require the Applicant to hire a licensed professional engineer to complete a sight stopping distance and safety study for the proposed location; said study shall make recommendations to Bingham County Public Works Director, who may accept or reject the recommendations for decreased sight distance requirements.

*Table 4 - Required Spacing from Driveway Approaches to Intersections (ft.)*

Speed (mph) <sup>1</sup>	Functional Classification					
	Subdivision	Local (400 ADT)	Minor Collector (150-1110 ADT)	Major Collector (300-2600 ADT)	Minor Arterial (1,500-6,000 ADT)	Other Principal Arterial (2,000-8,500 ADT)
25	60	60	160	185	205	250
30	60	60	190	215	230	250
35	60	60	220	240	250	250
40	---	60	250	280	305	305
45	---	60	280	325	360	360
50	---	65	310	375	425	425
55	---	65	345	416	425	425

*\*Bingham County Sight Distance Triangle and Access Requirements must be maintained for all driveway approaches and intersections.*

<sup>1</sup>*Controlled (stopped leg) intersections follow the 25-mph speed approach spacing from intersection*

*Table 5 - Required Spacing Between Driveway Approaches (ft.)*

Speed (mph)	Functional Classification					
	Subdivision	Local (400 ADT)	Minor Collector (150-1110 ADT)	Major Collector (300-2600 ADT)	Minor Arterial (1,500-6,000 ADT)	Other Principal Arterial (2,000-8,500 ADT)
25	20	55	90	90	205	250
30	20	55	105	105	230	250
35	20	60	125	125	250	250
40	---	60	140	140	305	305
45	---	60	155	155	360	360
50	---	65	175	175	425	425
55	---	65	190	190	425	425

*\*Bingham County Sight Distance Triangle and Access Requirements must be maintained for all driveway approaches and intersections*



1.7.1 CHALLENGE of the sight distance requirement exceeding 10% of the required spacing shall include the following:

- a. Provide verification of correction factors used in the determination of safe stopping distance for the proposed location of approach using the following guide lines.

SSD (Stopping Sight Distance), as defined by AASHTO (American Association of State Highway and Transportation Officials), is the required minimum distance required by a vehicle to react and stop before a road obstruction. On roads with higher speeds, this distance increases and is recommended to be included in determining approach distance spacing. Many other safety calculations at state and federal levels are based on SSD. Distances were calculated using a 2.5 second reaction time and a 11.2 ft/s<sup>2</sup> to calculate the required SSD as recommended by AASHTO (Section 9.5.3.2 of *A Policy on Geometric Design of Highways and Streets*). Stopping sight distance was utilized in calculations for approach spacing distances.

- b. Provide one-week (seven consecutive days) traffic count to include
  1. Total ADT (Average Daily Traffic)
  2. Speed 85<sup>th</sup> percentile
  3. 10 mph pace speed
  4. Am and pm peak hour volume
- c. Five-year accident history within one mile of requested approach location
- d. Geometric conditions (ie.) vertical and horizontal curves

**Note: Any challenge requiring a Sight Stopping Distance & Safety Study will be arranged and cost incurred by the applicant.**