Executive Summary

The Bannock Planning Organization in cooperation with City of Pocatello, City of Chubbuck, and Bannock County developed this Master Street Plan (MSP) to assist local government planning staff, elected officials, developers, and the general public to

Background

1.1 What is a Master Street Plan and Map

A Master Street Plan (MSP) is a document that provides the detail to carry out the Master Street Map (MSM) and Future Acquisition Map. The MSM provides the approximate location of all major streets within a local area. Together the MSM and MSP provide a guide to the development and change of all major streets within the Pocatello Urbanized Area.

1.2 Purpose of the Master Street Plan

The purpose of the Master Street Plan is to provide an engineering-based, legally defensible document that outlines the future collector and arterial placement and right-of-way requirements, and classifies the existing collectors and arterials by a street classification that can be used to develop a future acquisitions map.

Over the last few years Bannock Planning Organization (BPO) and its member communities have been working toward a MSP. The MSP is the final step in a planning process that started in 1992 with Bannock Planning Organization assisting in the development of the first coordinated comprehensive plans for BPO's member communities of Pocatello, Chubbuck, and Bannock County. With the completion of this plan, land use and transportation will be working closer than ever to implement the goals and policies of the regional Long Range Transportation Plan (LRTP) and local comprehensive plans.

1.3 Bannock Planning Organization

Bannock Planning Organization (BPO) is the designated Metropolitan Planning Organization (MPO) for the Pocatello urbanized area. Congress established MPOs in the early 1960's. The purpose of an MPO is to ensure that each area has a continuing, cooperative, and comprehensive transportation planning process resulting in plans and programs that consider all modes and support community goals.[i] BPO, therefore, conducts transportation planning Pocatello, Chubbuck, and northern Bannock County to provide these comprehensive transportation plans.

Each local jurisdiction could plan and adopt their own MSP and related map, but if developed separately there would be no consistency across jurisdictions. A collector road in one area might be different from another area. A consistent and predictable transportation system is critical to BPO’s main goal of providing a safe, reliable, and connected transportation system.

To ensure that the region’s MSP is consistent with local comprehensive plans, the LRTP, and across jurisdictions, local communities encouraged BPO to develop a Master Street Plan. This MSP adopted by BPO is only a recommendation to the local jurisdictions. Each local jurisdiction will need to adopt the MSP, MSM and modify their local development ordinances to be consistent with the plan.

1.4 Local Highway Jurisdictions

Pocatello, Chubbuck, Bannock County, and the Idaho Transportation Department (ITD) are the four agencies with control of the street system within BPO's planning area. This MSP is designed to assist these four agencies in the development of their transportation system. The MSP is a guide on needed right-of-way (ROW), design elements, and location of each of the various classes cove red in this plan. These four agencies have the authority under Idaho Code Title 67-6518 to develop standards for street systems including the ROW, alignment, intersections, and number of lanes.

The ITD controlled roads are state highways and interstates. We will cover these routes in this MSP, but the recommendation for ROW purchases under the future acquisition map section will be for local municipal jurisdiction with land use authority. The State of Idaho allows for development of a future acquisition map under Idaho Statutes Title 67, Chapter 65 Section 67-6517 for agencies with land use authority.

The recommendations in the MSP are advisory in nature. Each jurisdiction will be encouraged to adopt this MSP as a guide for their respective staff and public to follow in the development of the arterial street system. The MSP should guide future land development.

1.5 Goals and Design Policies of the Master Street Plan

1.5.1 Master Street Plan Goals

The Master Street Plan has two primary goals that are:

1. Provide the approximate location of future collectors and arterials with the BPO planning area.
2. Develop a Future Acquisitions Map for the existing street system.

Other goals include:

3. Provide a connected street network and meets the needs of anticipated development through 2025.

1.5.2 Design Policies

The development of this plan and its recommendation were done with the assumption that the following design policies will be in place with each jurisdiction.

- Local access management plans that control the location of access on collectors and arterials will be in place and followed.
- Direct private access to major arterials will not be allowed unless no other reasonable access is available.
- Pedestrian and bicycle facilities will be included on all facilities identified in this plan.
- Local roads will connect to the collector system whenever possible.

- Transit pullouts will be provided in arterials.
- Commercial land use requires additional ROW at key intersections.

Introduction

2.1 Overview

Cities and developers design every street for a specific purpose or function. Local streets, for example, serve the function of providing access to residential properties. Other streets, called collectors and arterials, connect the various parts of a community together. Highway jurisdictions design the arterials to carry higher levels of traffic at high speeds.

Local streets may be designed with two unmarked lanes and a design speed of 20 to 25 miles per hour while arterials are typically designed with four striped lanes and design speeds of 35 to 45 miles per hour or higher. Traffic problems can develop when traffic volumes more suited to arterial streets are carried on local streets. These problems include congestion, traffic noise, increased pollution, and decreased safety. The improper street design can also negatively influence residential and other land uses.

The solution to problems associated with improper street design may seem easy to eliminate by correctly designing streets to their function. The tricky part in correctly designing streets is perspective and time. Developers usually design streets in small pieces to serve specific developments. Unless the street is a continuation of an existing street, determining the function or purpose can be difficult. Developers and local communities are focused on the specific segment of street being developed, not the long term use and travel patterns. The second problem is time. A street's function can change over time. A local street in the center of a community might have been designed to serve a residential neighborhood over time but now serves as the principal commercial street in that community. The Cities of Pocatello and Chubbuck are filled with examples of this change in use. Jefferson Avenue is functioning as an arterial street carrying more than 16,000 vehicles per day. Jefferson Avenue was designed as a residential street, but due to the growth and its connection to growing parts of the community, its function and character have changed.

To prevent this type of problem in the future and to remove some existing problems, Bannock Planning Organization and our member communities have developed a Master Street Plan. The MSP looks at the future (the Year 2025) and determines where and what type of road needs to be built. The MSP plans for some streets changing over time by allowing a transition of the number of lanes a specific road has while protecting the surrounding land use from the problems associated with eventual build-out of the road.

2.2 Principals of System Layout

Given the communities of Pocatello and Chubbuck are already developed provides challenges to laying out new collectors and arterials and providing space to widen existing collectors and arterials to meet current design requirements. The following is a list of principles used in laying out the MSM.

- A 2025 Level of Service D (volume to capacity ratio of 90%) was acceptable in existing

areas where road widening is impractical.
- A 2025 Level of Service C (volume to capacity ratio of 50%) for all new facilities.
- Street spacing would be based upon the American Association of State Highway and Transportation Officials: Policy on Geometric Design of Highways and Streets 2001.
- Classification of specific roads would be based on 2002 and 2025 travel demand modeling results.
- Modifications to proposed design classifications would be made based on land use, availability of right-of-way, and potential benefit.
- The collector and arterial system is connected at two points.
- Pedestrian and bicycle movement must be incorporated into the design.
- Trip lengths should be kept to a minimum.

2.3 Functional Classification

Throughout this document, the terms "collector" and "arterial" will be used. These terms have several meanings that can be confusing to the potential reader. The Federal-Aid Highway Act of 1973 required the use of a functional highway classification. This new functional classification system combined the naming conventions used by many states and local governments into one national system. The classification system served a national purpose of providing an easy reporting tool to track the number and location of certain roadway classifications.

We grouped the functional classes into systems according to the character of service they are intended to provide. The premise of the system is the recognition that all roads are connected and dependent upon others roads to provide value and function. The different classes try to describe a specific roadway relationship in the system. The federal system includes local, collector, minor arterial, principal arterial road, and interstate classes in an urban setting.

Local roads, in an urban environment, serve neighborhoods and individual homes. Collectors gather trips from these small neighborhoods and funnel them to the arterial system. Collectors are typically located in residential areas and provide a linking function. Arterials are divided into minor and principal in urban settings. Arterials are found on the fringes of residential areas and they serve to link different parts of the community or neighboring communities. Minor Arterials augment the principal arterial system but serve trips of shorter length or isolated parts of the community. Principal arterials serve major activity centers and connect different parts of the community. Principal arterials also serve as connections to other communities.

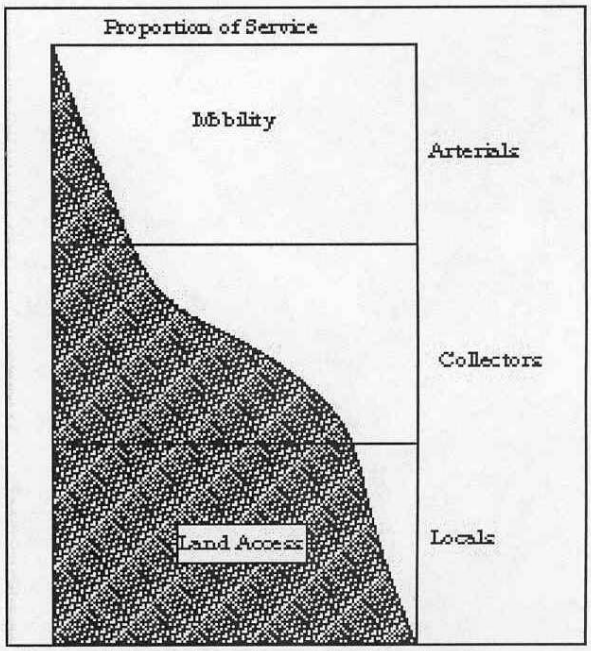
This federal system works well in inventorying the national highway system and providing estimates of travel but do little to define how the actual street cross-section is built. The federal guide lists traffic volumes as only a factor in determining the functional classification of a roadway. In this way the federal system does little to help our community anticipate needed roadway widths and to improve our existing roadways to meet the existing and future demand.

The Federal Classification System also identifies a relationship between mobility and access for the various classes. Figure 2-1 outlines this service relationship between local and arterial streets. Local streets function primarily to access surrounding land use. Arterial streets function to provide mobility between and through communities while providing little access to surrounding land use.

The second major function of the federal classification system is to provide eligibility for federal aid under the various highway programs. Listing in the official Functional Classification Map has determined this eligibility. The MPO reviews and approves this map every five years and it is the official map for federal aid and reporting. The Master Street Plan Map is not the Functional Classification Map and does not serve that function.

Figure 2-1 Relationship of Functionally Classified Systems in Serving Traffic Mobility and Land Access

Figure 2-1 Relationship of Functionally Classified Systems in Serving Traffic Mobility and Land Access



Source: Highway Functional Classification Concepts, Criteria and Procedure U.S. DOT March 1989 (738)

2.4 Master Street Plan Map Overview

Clearly, while valuable, the Federal Functional Classification Map is not adequate for local purposes of street design, ROW identification, or corridor preservation. A Master Street Map allows local communities to plan their street systems better. The MSM is similar to the Functional Classification Map as it identifies the various classes of streets, but is different in that it only identifies collectors and arterials and assigns a design and ROW requirement to the specific street segment. In this way the problems of a street changing function over time without the ability to change design to accommodate this change should be avoided. The MSM as described in more detail in later sections of this plan will allow land use planners and property owners to know the street configuration and can thereby modify the development on a specific property to reduce the potential impact of the road in the future. The MSM uses similar terms as the federal classification system, but the meaning and purpose of these terms are not interchangeable.

MSM and MSP classifications include local, collector, arterial, major arterial, and interstate. Only collectors, arterials, and major arterials will be specifically addressed in this document. The MSP follows the same portion of service graph as found in Figure 2.1.

Street Design Standards Overview

This section will introduce the street classification, spacing standards, and the design elements that should be included in each of the various design classes. The overview will provide the needed background data to establish a common vocabulary and understanding of the concepts that will be used in the remaining document. We have not intended this overview to be used during the design phase of a project only at the planning level for determination of right-of-way (ROW) and curb-to-curb distance.

3.1 Street Hierarchy

BPO design classification system uses seven different classes and one modifier. The classes listed in Table 3-1 from highest level of mobility and ability to carry traffic to lowest mobility and provision of access to residential areas.

Interstate and local design classifications are listed in this plan, but are not specifically covered. The Federal Highway Administration controls interstate highways. This federal agency regulates their design, location, and access points and is not a local decision. Local agencies use a local design classification system that can vary by agency. The existing local city or county ordinances will determine the design and placement of local streets.

3.1.1 Major Arterials

Major Arterials are the backbone of the system. These streets are designed and placed to carry the most traffic within the community. The Major Arterials serve to link the various parts of the community and serve as access points to large commercial developments. Land use along Major Arterials is typically commercial but this is not always the case. Major Arterials should have four travel lanes and a center turn lane, right turn lanes at intersections, right deceleration lanes at commercial properties, and not allow on-street parking. Bicycle and pedestrian facilities are provided on both sides of a Major Arterial.

3.1.2 Arterials

Arterials have more focus on providing access than Major Arterials. The access control requirements on Arterials are less restrictive than with Major Arterials. Arterials and Major Arterials might have the same curb-to-curb width, but the design speed, access control, and cross section will be different. Minor Arterials should include bicycle, pedestrian, and transit facilities within the design.

3.1.3 Collectors

Collector streets serve the same basic function and have similar roadway elements as local streets, but they are tied into the arterial system. Depending upon the areas and anticipated growth, Collector streets can require additional elements to accommodate turning vehicles. All Collector streets should have bicycle and pedestrian facilities included in the design.

3.1.4 Local

Local streets provide access to residential properties. Most local streets do not serve through traffic. Generally, the volumes on most local streets are less than 1,000 Average Annual Daily Traffic (AADT). The curb-to-curb width of 40 feet presently required is more than enough to accommodate the roadway elements needed to serve this traffic. Some residential streets with low demand or are under two-hundred feet long require as little as 20 feet curb-to-curb.

Table 3-1

Design Classification	Purpose
Interstates	The purpose of the interstate system is to connect various cities and states together. This class is shown on the map but the location and design is controlled by the Federal Highway Administration.
Major Arterial (MA)	They are designed to carry most of the traffic in our communities. Major Arterials are located about every mile. These facilities connect the community together.
Rural Arterial (RA)	Rural Arterials are arterials that are areas on the fringes of our community. Most of these streets are in transition form a rural to an urban land use pattern. Preserving the ROW on these roadways is critical to the long term connectivity of the system
Arterial (A)	Arterials are similar to Minor Arterials. They provide a secondary system to the MA system but serve more residential areas.
One-Way Arterial (1W)	One-Way Arterials are usually Major Arterials, but are designed as one-way couplets. These are usually done to provide the traffic carrying capacity when road widening is not feasible.
Collector (C)	Collectors primarily serve residential communities. A Collector's primary purpose is to link local streets to the arterial system.
Local (L)	The Local street purpose is to provide access to property.

3.1.5 Classification Modifier

In many communities the various classes have a ROW requirement that varies by as much as fifty feet. We allow this variation to change the specific design of a street to meet the actual conditions that may apply. The problem is the conditions can change and the ROW required could change. For the BPO Planning area, local government staffs and others have determined the design for each class that should meet the demand placed upon it. If for some reason a specific street cannot meet the design classification requirements a number two (2) will be placed next to the classification. One reason for this classification would be proximity to buildings. Purchasing ROW could put the building closer to the street than required by local ordinance. The design class of Arterial 2 would mean that this arterial street could not meet the minimum design requirements and alternative designs would be developed. These alternative designs will be reviewed in the Transitional Plan section of this plan.

Classification Modifier	
2	Due to the developed nature of the Pocatello/Chubbuck area a number two added to any of the above classifications designates that facility as a transitional facility. The "2" means that due to development, they could not easily meet the design standards assigned to the class.

3.2 Spacing

Table 3-2 outlines the spacing requirements of the various design classifications. Spacing is the distance from one street of the same class to another. Although no firm spacing rules apply in all cases, Table 3-2 gives a good guideline base upon normal land development patterns. Some research has listed the spacing of various classes but cautions users that these are only guidelines and actual traffic patterns should be used.

Table 3-2 Design Classification Spacing

Design Classification	Spacing Recommendations
Interstates	N/A
Major Arterial (MA)	½ to 1 mile
Rural Arterial (RA)	1 mile
Arterial (A)	¼ to 1 mile
One-Way Arterial (1 W)	¼ to 1 mile
Collector (C)	1/8 to ½ mile
Local (L)	Locally determined

Like the Functional Classification system, the spacing criterion assumes that use and demand for the facility has been established. The response-oriented design causes problems with congestion and neighborhood impacts as those described in the background section. The factors listed in these publications include intensity of development, topography, spacing of activity centers, and location within the urban area. The spacing recommendations in Table 3-2 are closer than other urban areas due to our man-made and natural geographic constraints and location and proximity of commercial development. Collectors and arterials tend to be closer in the community core and closer to the upped recommendation in the non-developed areas of the planning area.

BPO has a travel demand model that predicts traffic patterns based on demographic information. The traffic model was used to figure out the existing travel patterns this information with growth information used to space the various design class roadway and to modify the national recommendations to local conditions.

3.3 Determining the Design Classification and Location

Step 1: The existing base map of the urban area was analyzed using the results of the travel demand model. The analysis consisted of identifying areas of high traffic volumes, large population and high employment levels.

Step 2: The existing Federal Functional Classification Map was used as a base group of streets that should be included in the design class system. A classification was assigned to each roadway based on traffic volumes, functional classification, land

use associated with segment, potential traffic volume growth, and length of the facility.

Step 3: New streets were added to meet the spacing recommendations, establish a connected system, and serve undeveloped land.

Step 4: This step involved an agency and public review of the recommended classification and an identification of streets that could meet the assigned design classification.

3.4 Design Considerations

Design considerations are very important to the safe and efficient flow of vehicles along the roadway. These elements include site distance, super-elevation, grades, sight distance, horizontal and vertical alignments, and other geometric features. These elements need to be decided upon during the design process. The MSP is a planning level approach to system planning. The actual requirements for each of these elements should be determined by the roadway designer during the design process. Guidelines like those in AASHTO and others provide guidance in making these determinations.

The design speed for each classification should be consistent with the classification. A design speed for urban arterials of 35 to 50 miles per year is constant with the assumed operating speed on that design classification.

BPO assumes that a design vehicle for arterials is a WB-50.

Other design elements such as ROW, roadway capacity, and general guidelines will be discussed in Section 4.

3.5 Cross Sectional Elements

Cross sectional elements are like design elements in that they determine the characteristics of the roadway but some are critical in the development of this plan. Those elements addressed in this plan are: lane widths, curbs, pedestrian facilities, bicycle facilities, parking, and bus turnouts. The recommendation for each are only that. In order to determine the needed ROW for the roadway and travel way for a various classification, these cross sectional elements need to be resolved.

3.5.1 Lane Widths

The lane width used for the recommended classifications is 12'. This is consistent with AASHTO's policy and the Idaho Transportation Department's Design Guidelines. Widths less than 12' should only be done case by case and during a design review process. In some cases 16' travel lanes are used when that lane might be shared with bicycles or in high traffic areas with a large truck mix.

3.5.2 Curbs

It was assumed a curb of some type would be used at the edge of the roadway. The specific design and specifications of these curbs is a local decision. For specific requirements see the design guideline of the specific agency for which the road will be constructed. For ROW considerations a 1.5' curb and gutter area is assumed.

3.5.3 Pedestrian Facilities

The recommended cross section for each design classification has five (5') feet of sidewalk. This is the smallest sidewalk width that should be used in determining ROW required for a street. If the street design considered is in a potential high pedestrian area or in a commercial area, a larger sidewalk width of eight (8) feet could be considered. Both sidewalk widths are assuming an obstacle free environment. Objects such as light pole, mail boxes, and sign poles should not be located in the sidewalk area. If included, the width should be adjusted to accommodate the object and the required width.

3.5.4 Bicycle Facilities

Bicycle facilities should be included on all collectors and arterials within the urban area. In some cases the existing road width will not support a separate bicycle lane. In these cases the designer or planner should reference BPO's Bicycle Plan to determine if the facility needs a bicycle facility. Bicycle paths listed in this guide are required to be constructed during any redevelopment of that roadway. All new facilities should include provision of bicycle lanes. Bicycle lanes vary from five to six feet in width. If a bike lane is located along a curb, a 6' lane is recommended. If the bike lane is next to parking then a 5' lane is recommended. For specific guidelines see AASHTO's Guide on Bicycle Facilities or most current publication.

3.5.5 Parking

Parking is allowed only on collectors. Some Arterials in residential areas and 1-Way Arterials have parking but these parking areas would be eliminated as traffic flows require an additional lane. Parking on a collector should be restricted to residential zone areas where allowed when an 8 foot lane is used.

3.5.6 Bus Turnouts

Bus turnout locations are covered in another section of this plan. Those stops which currently exist on arterials should be considered as appropriate locations for stops. The need for bus turnouts along arterials is critical. The turnout requirement is addressed in intersection design requirements. Most bus pullouts will be located on the far side of intersections.

A bus turnout includes the deceleration lane, loading area, and merging area. Local or state design guidelines provide the details for required deceleration and merging lane tapers. The loading area should be at least 50 ft long and 12 ft wide. Figure 3-1 shows the elements in a mid-block bus turnout.

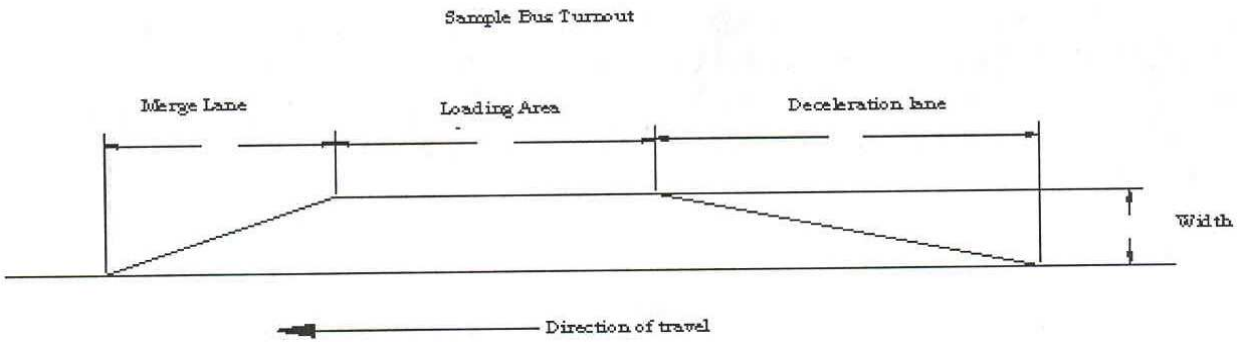


Figure 3-1 Sample Bus Turnout

3.6 Additional Design Elements

The primary purpose of this document is the design and placement of collectors and arterials, but several other design elements outside of the street ROW affects the users and landowners along these facilities. These elements include: access points and management, sound walls, and setbacks.

3.6.1 Access Points and Management

Access Management in the Pocatello/Chubbuck urban area is governed by the Guidelines for Policies on Controlled Access Arterials and Collectors (5) and the Idaho Transportation Department's Administrative Rule 39.03.42 Rules Governing Highway Right-of-Way Encroachments on State Rights-of-Way. The basic guidelines limit the access of collectors and arterials to intersections with other public streets. The spacing and distance between access points is covered in these documents.

3.6.2 Sound Wall

High traffic volume streets have many benefits and problems associated with them. Residents along these facilities notice the rise in background noise as the number of vehicles increases.

These noise issues are usually associated with high speed facilities such as the interstate highway and major arterials. Prevention is the biggest key to solving problems of high speed high volume streets and residential properties. At the edge of ROW a noise wall or berm with a fence should be built. The exact height of the wall or berm should be determined after finding out the average distance between travel lane and the area of interest. This area could be the back yard or the home itself. Federal Highway Administration published guidelines for considering noise impacts on land use and should be considered prior to building arterial streets.

3.6.3 Set Back

Set back is the distance from the property line to the structure. This distance is controlled by the local ordinance. Both Pocatello and Chubbuck have standards for different types of lane use. These standards are reasonable in most cases, but special care should be given to intersections and residential uses on collectors. Thirty feet set back on collectors is more desirable than the usual 20 to 25 feet.

Right-of-Way and Design Standards

The ROW and Design Standard section provides a guideline for local communities and land developers in planning for required collectors and arterials. The section outlines the design guidelines, ROW requirements, and capacity for each Design Classification. Modifications to these guidelines as a result of land use changes are also covered. The area covered is modification to intersections.

4.1 General Design Guidelines

The design guideline for each class will be reviewed with the exception of Interstates and Local Roads. Interstates as discussed earlier are under the control of the Federal Highway Administration and their rules and requirements control the design of the Interstate Highway system. Local roads are left to the specific standards of the city or county in which the road is to be built. Each city and county has a comprehensive plan to assist in the placement and design of these facilities. The focus of this plan is collectors and arterials.

These guidelines are for general planning purposes based on the level of service standards and roadway capacity. It is not the intention of these guidelines to require a certain lane configuration but rather provide a guideline for design that BPO has determined is appropriate for the anticipated traffic demand. The local jurisdiction should modify these guidelines to fit the specific conditions of a given road segment.

4.1.1 Major Arterial

Major Arterials are the primary way vehicles move through the community. Major Arterials are higher speed, limited access roadways that serve a mobility function within the community. Historically, the Major Arterials in the BPO planning area were state highways. Some of these highways were developed with access control and others allowed commercial development with individual access. These Major Arterials located in the center of the planning area will look different than those outside the center.

Access control for these facilities is controlled by each of the jurisdictions access control policies, but regardless of the policy, access should be limited to public streets. The primary purpose of these roadways is mobility.

4.1.2 Rural Arterials

Rural Arterials are those facilities currently on the border of the urban area. These facilities, if they were located in the urban area, would be Major Arterials, but due to their location, the traffic flows are minimal. The design of these facilities is two lanes with a shoulder. The ROW is the same as the Major Arterials. The curb-to-curb distance is 36' with Rural Arterials, as compared

to 80' with Major Arterials. The additional space can be used for various treatments including grass and native ground cover. This additional ROW will be used to improve the facilities once traffic volumes warrant increased lane width or an urban development occurs contiguous to the existing urban area.

4.1.3 One-Way Arterials

One-way Arterials are used in those areas that, due to constraints, cannot meet requirements of the Major Arterial and due to close proximity to another street, make better sense to use two streets. One-way couplets are very common in developed parts of communities. The capacity is increased without impact to neighboring land use. The use of One-way Arterials should be limited to existing couplets and as a last resort.

4.1.4 Arterials

Arterials are supplemental streets within the planning area. These Arterials support the Major Arterials and are located between them. The purpose of Arterials is similar to Major Arterials, but the mobility function and access function come closer together. Arterials are two-lane with a two-way-center-turn lane. Arterials serve more residential areas and help relieve pressure from Major Arterials. Arterials with their 80' ROW are better suited to the Pocatello/Chubbuck geographic setting.

4.1.5 Collectors

Collectors are the final class discussed in the plan. Collector streets are designed to serve local residential traffic and assist in funneling this traffic from neighborhoods to the arterials system. Collectors have two lanes with parking and bicycle lanes. Care should be given to collector street designation. Land use next to a collector street should be designed with off-street parking to meet the needs of the land use. For example, residential dwellings should have off street parking to meet the anticipated demand. The reason for this is, collectors can be converted to arterials by removing parking in the future. Collectors should be designed to provide a residential feel and therefore, speeds should 25 MPH.

4.1.6 Modifier

The use of the Number “2" next to any of the above classifications designates a modification to the standard drawing and ROW. This designation is used in areas that widening or use of one-way arterials is not feasible or desirable. The classification is assigned to the roadway given the traffic demand, spacing, and use of the roadway. The given classifications ROW requirements cannot be met in this area therefore, the “2" is assigned. Most street segments assigned a “2" will be discussed in detail in section ****** transitional plans.**

Major Arterial

Rural Arterial

Arterial

One-Way Arterial

Collector

4.2 Right-of-Way Requirements

The amount of ROW required by each of the design classes described in the previous section is based on AASHTO guidelines and the anticipated traffic load for each class. The ROW required is also balanced with the design to limit the profile of the street and to reduce runoff, reduce long-term maintenance costs, increase pedestrian safety, and other factors. It should be noted that except for the One-way Arterial the lower class could be converted to the higher class if pedestrian facilities are located in an easement or the bicycle lanes are removed. This removal is not a recommendation just a design feature built into the requirements for future adjustments if traffic volumes demand additional lanes. Table 4-1 outlines the ROW for each design classification.

Table 4-1 Right-of-Way Requirements by Design Class

Design Classification	Right-of-Way Required	Curb-to-Curb distance
Major Arterial	100 feet	80 feet
Rural Arterial	100 feet	36 feet
One-Way Arterial	55 feet	45 feet
Arterial	80 feet	52 feet
Collector	70 feet	50 feet

Note: an additional 12 to 24 feet could be required up to three hundred feet from intersections for turn lanes. See Table 4-3 for requirements.

4.3 Capacity

The capacity of a roadway is a very complex concept. In the simplest terms it is the traffic volume that a can pass a specific roadway segment within a given time period. For planning studies like the MSP the time period is one day. Many factors can affect the traffic volumes anticipated. In theory the saturation flow is 1,800 vehicles per hour given a two second gap between each vehicle. Factors that affect this maximum flow include: increased vehicle gap, lane widths, percentage of trucks in the traffic flow, turning vehicles, traffic control devices, utilization of lanes, and presence of parking. Table 4-2 outlines the capacity for each design classification.

Capacity is used with existing and future traffic volumes to determine the Level-of-Service for that roadway. LOS “C” is the standard in BPO’s planning area. The traffic volume to capacity ratio (V/C Ratio) is also a good indication of congestion and need for additional travel lanes. This is good for Rural Arterials to determine when widening to a Major Arterial standard is needed.

Table 4-2 Capacity by Design Class

Design Classification	Capacity
Major Arterial	43,298
Rural Arterial	19,178
One-Way Arterial	19,178
Arterial	18,955
Collector	11,911

Note: capacities are local generated numbers based on Highway Capacity Manual 2000 procedures for LOS "C".

4.4 Modification to Design Based on Land Use

The various design classes have assumed land use associated with the design. Major Arterials will be along commercial or industrial zoned lands, whereas collectors are mostly along residential zoned lands. The lane design and ROW requirements are based on these assumptions. Table 4-3 lists the suggested modifications to the basic design when land use is varied.

Table 4-3 Modifications to Design Class based on Land Use

Design Class	Assumed Zoning	Actual Zoning	Modification
Major Arterial	Commercial	Residential	Increased in parkway to allow for better shielding of noise and other traffic issues.
Arterial	Neighborhood Commercial or Residential	Strip Development	Widen the center median to 24 feet.
Collector	Residential	Commercial	Remove parking and add center two-way-left-turn

4.5 Intersections

In transportation planning the roadway segments receive the attention. This plan is about locating the roadway segments. Transportation engineering, however, considers the intersections as the most critical. Intersections (access points) are where conflicts are introduced into the system. Capacity, listed in the previous section, is an approximate number based on many factors. Many communities have different ways of calculating the link capacity. Intersections and especially signalized intersections are the controls for the system. You can consider them like blockages in a stream. Stop signs only slightly impede the traffic flow while signals stop one or more traffic flows for a certain time.

The requirements for an intersection can affect the ROW required at various areas through the community. The ROW cited in Table 4-2 could be increased up to twenty-four feet near intersections. Table 4-4 is a matrix showing the recommendation for turn lanes by classification.

Table 4-4 Intersection Turn Lane Recommendation

Class	**Collector**		**Arterial**		**One-Way Arterial**		**Rural Arterial**		**Major Arterial**	
	Right	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**
Collector	N	N	N	O	N	N	N	N	O	O
Arterial	N	Y	Y	O	N	Y	N	Y	Y	Y
One-Way Arterial	N	N	N	N	N	N	N	N	Y	O
Rural Arterial	N	N	N	N	N	N	N	N	O	O
Major Arterial	O	O	Y	Y	Y	O	O	O	Y	Y

Notes: Right = right turn lane; Left = left turn lane N = no turn lane required; Y = turn lane required; O = optional depending on conditions

Existing Street Classification

5.1 General Classification

Existing streets as discussed earlier have special needs due to their function not being compatible with the design. This section will cover the assignment of a design classification for each of the existing streets and modification to specific streets assigned the "2" modifier.

Map 5-1 shows the design classification for the existing street system. Tables 5-1 through 5-4 provides a list of the streets that are included in each classification. The existing design classification will enable local communities to establish a new ROW standard and design requirement for each roadway segment.

Section 4, Right-of-Way and Design Standards, outline the ROW requirements and cross section design for each classification. Table 4-2 provides required ROW and Curb-to-Curb distance for each classification.

5.2 Purpose and Use of Existing Design Classification Map

The current street classification allows local agencies to compare the existing cross section to the recommended cross section outlined in Section 4. Most streets shown in Map 5-1 do not currently have the required ROW to implement the needed improvement. Map 5-2 shows the ROW required to meet the design guidelines in Section 4. The purpose of design classification of existing streets is to assist agencies in establishing the ROW criteria for all existing roadways. This serves future required ROW and allows local government agencies and landowners to know what property will be needed for future roadway expansion. Section 10 identifies the segment and specific ROW requirement for each.

Map 5-1 and Table 5-1 through 5-4 identifies a road to be included in the collector and arterials and what the exact classification is for that roadway and if that roadway has any modifications to standards. After determining the classification, Section 4 provides the needed ROW and Curb-to-Curb distances for each classification. Subtracting the needed from the existing and then dividing by two will provide the ROW for each property. The user should be cautioned that this is only an approximate ROW for 2025 given the existing land use. Map 5-2 shows the ranges of needed ROW for existing collectors and arterials. The current zoning and use of property should be analyzed to determine if modifications to standards are warranted.

5.3 Modification to Right-of-Way Standards

There are many streets within the urbanized area that: exceed capacity of the roadway in 2025; do not meet the minimum required ROW or curb-to-curb distances; and do not have the ability to reasonably widen the roadway. For these streets a modification designator or "2" has been applied to their design classification in the database. Table 5-5 lists the roadway segments that meet the above criteria. These specific roadway segments will be discussed further in Section 9.

Current Street Design Classification Map

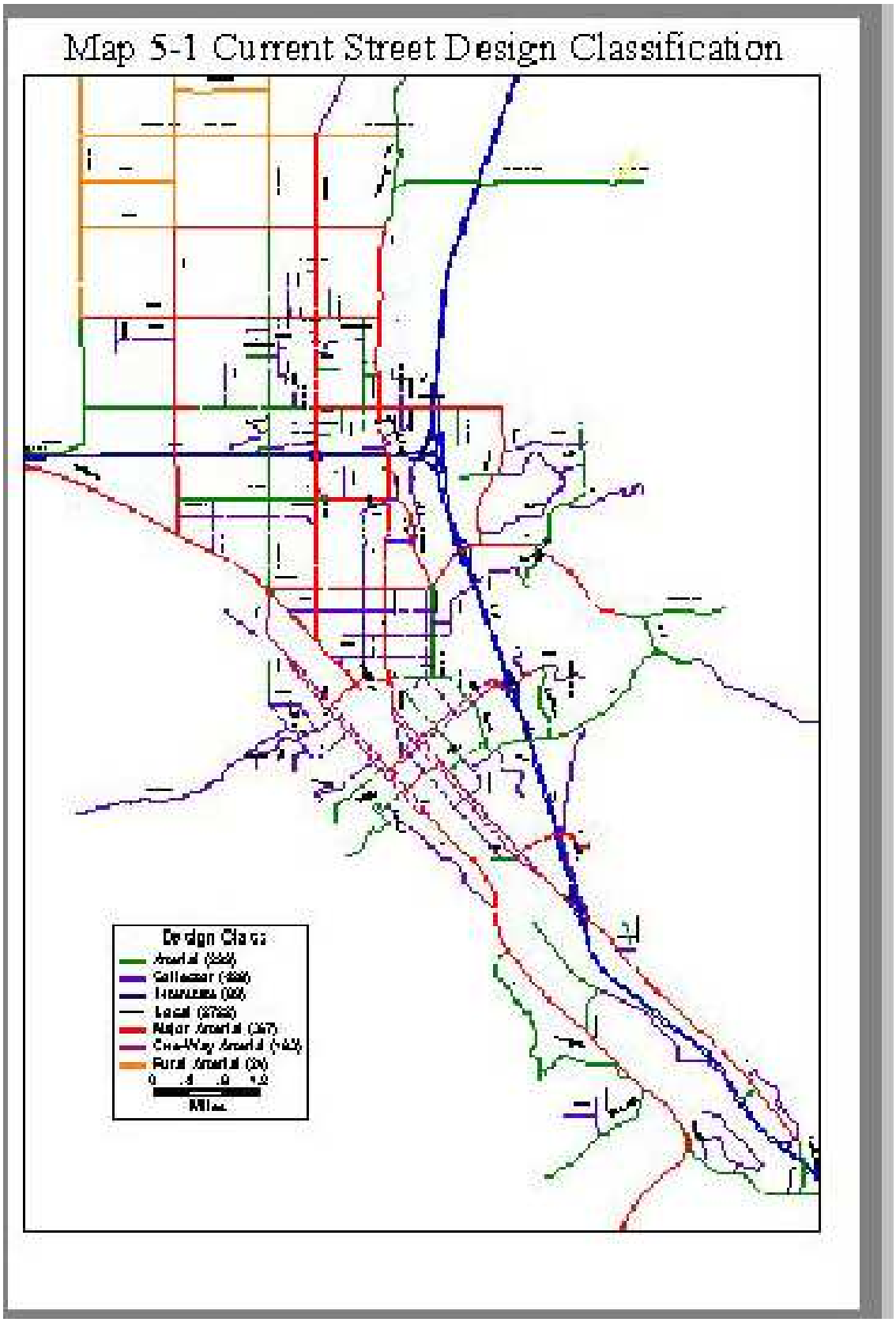


Table 5-1 Existing Collector Streets

Prefix	Street Name	From Street	To Street
North	12th Avenue	Jefferson Avenue	Center Street
South	2nd Avenue	Pocatello Avenue	Center Street
North	2nd Avenue	Center Street	Fredregill Road
South	8th Avenue	Center Street	Martin Luther King Drive
North	8th Avenue	Sherman Street	Center Street
	Adams Street	Lucky Avenue	Stuart Avenue
	Alvin Ricken Drive	Terry Street	Barton Road
	Anderson Lane	Pocatello Creek Road	End of Street
	Bartz Way	Terry Street	End of Street
	Bonanza Avenue	Hawthorne Road	Redman Street
	Briscoe Road	Yellowstone Avenue	End of Road
	Brundage Street	Mountain Park Road	Mountlake Street
	Buckskin Road	West Buckskin Road	End of Street
	Burnside Avenue	Yellowstone Avenue	End of Street
	Butte Street	Olympus Drive	Satterfield Drive
West	Carson Street	Riverside Drive	Main Street
West	Cedar Street	Yellowstone Avenue	Jefferson Avenue
East	Cedar Street	Moreland Avenue	Yellowstone Avenue
East	Center Street	Hospital Way	End of Street
	Chateau Street	Chubbuck Road	Brundage Street
	Chesapeake Road	End of Street	Whitaker Road
West	Clark Street	End of Street	Main Street
	Cole Avenue	End of Street	Chubbuck Road
	Country Club Drive	Johnny Creek Road	Bannock Highway
West	Custer Street	Willow Lane	Main Street
	Darris Street	End of Street	Hawthorne Road
	El Rancho Boulevard	Hiline Road	Park Lane
	Elizabeth Drive	Garden Drive	Chubbuck Road
	Eric	End of Street	Jerry Street
	Eve Street	Noah Street	Siphon Road
	Fairway Drive	Olympus Drive	Lois Lane
South	Fairway Drive	Olympus Drive	Lois Lane
	Foothill Boulevard	Trail Creek Road	Oakwood Drive
	Fox Court	Alpine Avenue	Redman Street
	Franklin Avenue	Monte Vista Drive	Pine Street
West	Fremont Street	Canyon Drive	Main Street
South	Grant Avenue	Benton Street	Bannock Highway
	Heather Road	End of Street	Stephanie Road
	Highland Boulevard	Westello Boulevard	Willow Avenue
	Hildreth Road	End of Street	South 5th Avenue
East	Humbolt Street	2nd Avenue	8th Avenue
	Hurley Drive	End of Street	Yellowstone Avenue
	Jerry Street	Darris Street	Eric

Prefix	Street Name	From Street	To Street
	Kinghorn Road	End of Street	Hawthorne Road
	Kraft Road	End of Street	Gathe Drive
West	Linden Avenue	End of Street	Yellowstone Avenue
East	Linden Avenue	Yellowstone Avenue	End of Street
	Lish Street	End of Street	Chubbuck Road
	Lois Lane	Fairway Drive	Satterfield Drive
West	Maple Street	Garrett Way	Yellowstone Avenue
East	Maple Street	Yellowstone Avenue	Jefferson Avenue
	Martin Luther King Drive	8th Avenue	Memorial Drive
	McKinley Avenue	Z Street	Gould Street
	Monte Vista Drive	East Alameda Road	Booth Drive
	Moreland Avenue	Garrett Way	West Maple Street
	Mountain Park Road	Mountlake Street	Brundage Street
	Nelson Lane	Siphon Road	End of Street
	Noah Street	End of Street	Eve Street
	Oakwood Avenue	Gathe Drive	Riverside Drive
	Park Lawn Avenue	Yellowstone Avenue	Diamond
	Pearl Street	Yellowstone Avenue	Hiline Road
West	Pine Street	Moreland Avenue	Yellowstone Avenue
East	Pine Street	Yellowstone Avenue	Jefferson Avenue
	Pocatello Avenue	4th Avenue	Clark Street
East	Poplar Street	Jefferson Avenue	Franklin Avenue
	Promise Lane	End of Street	Philbin Road
	Quinn Road	Philbin Road	Hawthorne Road
	Randolph Avenue	Alameda Road	Jefferson Street
	Renee Avenue	Monte Vista Drive	Beth Street
	Riverside Drive	Oakwood Avenue	Carson Street
	Rose Street	Stuart Avenue	Hollyhock
	Sample	Siphon	Garden Oaks
East	Sherman Street	8th Avenue	Jefferson Avenue
	Shores Road	South 5th Avenue	Stockman Road
	Sorrell Drive	Garden Oaks	Briscoe Road
	Spaulding Lane	End of Street	El Rancho Boulevard
	Stephanie Road	Abby Road	Gibson Jack Road
	Stuart Avenue	End of Street	Yellowstone Avenue
	Summit Drive	Satterfield Drive	End of Street
	Trail Creek Road	End of Street	Foothill Boulevard
	Vista Drive	End of Street	Center Street
	Wildlife Way	Barton Road	South 5th Avenue
	Wingate Drive	End of Street	Poleline Road
	Z Street	Fuller Way	McKinley Avenue

Table 5-2 Existing Arterial Streets

Prefix	Street Name	From Street	To Street
South	15th Avenue	Center Street	Bonneville Street
North	15th Avenue	Oak Street	Center Street
	2 ½ Mile Road	Hiline Road	End of Street
South	2nd Avenue	Fredregill Road	Cheyenne Avenue
North	8th Avenue	Sherman Street	Center Street
South	8th Avenue	Center Street	Martin Luther King Drive
	Alpine Avenue	End of Street	Hawthorne Road
	Batiste Road	Rio Vista Road	US Hwy 30
West	Benton Street	Grant Avenue	2nd Avenue
	Booth Drive	Monte Vista Drive	Pocatello Creek Road
	Bringhurst Street	End of Street	Yellowstone Avenue
	Buckskin Road	Hospital Way	Parks Road
	Burley Drive	Chubbuck Road	Evans Lane
	Carter Street	4th Avenue	Memorial Drive
	Cheyenne Avenue	Bannock Highway	South 2nd Avenue
	Chubbuck Road	Rio Vista Road	Philbin Road
	Chubbuck Road	Independence Avenue	Yellowstone Avenue
	City Creek Road		
	Clark Street	End of Street	Main Street
	Country Club Drive	Johnny Creek Road	Bannock Highway
	Dorset	End of Street	Fairway Drive
	Evans Lane	Yellowstone Avenue	End of Street
	Fairground	Chubbuck Road	Dorset
	Fort Hall Mine Road	Portneuf Road	Old US 91
	Fredregill Road	South 2nd Avenue	5th Avenue
	Garden Street		
	Gathe Drive	Kraft Road	Oakwood Drive
	Gibson Jack Road	End of Street	Bannock Highway
	Hawthorne Road	Tyhee Road	Tyhee Road
	Hiline Road	Urban area	Tyhee Road
	Hildreth Road	End of Street	South 5th Avenue
	Hiway Avenue	Yellowstone Avenue	End of Street
	Homestead Road	End of Street	Hawthorne Road
	Hospital Way	Center Street	Terry Street
	Huntington Drive		
	Industry Way	End of Street	Siphon Road
	Jefferson Avenue	Alameda Road	Oak Street
	Johnny Creek Road	Bannock Highway	End of Street
	Johnson Avenue	Whitman Street	Benton Street
	Kraft Road		

Prefix	Street Name	From Street	To Street
	Memorial Drive	Bonneville Street	Terry Street
	Monte Vista Drive	Booth Drive	End of Street
East	Oak Street	Yellowstone Avenue	15th Avenue
	Oliver Avenue	End of Street	South 2nd Avenue
	Parks Road	Pocatello Creek Road	Buckskin Road
	Pocatello Creek Road	.3 Miles NE of Parks Rd	End of Street
	Portneuf Road	Bannock Highway	End of Street
	Quinn Road	Philbin Road	Yellowstone Avenue
	Rio Vista Road	Siphon Road	Batiste Road
	Satterfield Drive	End of Street	Pocatello Creek Road
	Stockman Road	Swisher Rpad	South 5th Avenue
	Tank Farm Road	Batiste Road	I-86
East	Terry Street	Memorial Drive	Hospital Way
	2 ½ Mile Road	Hiline Road	End of Street
	Vern Street	Whitaker Road	Hiline Road

Table 5-3 Existing Major Arterials

Prefix	Street Name	From Street	To Street
North	1sst Avenue	Clark Street	Center Street
South	5th Avenue	Swisher Road	Fort Hall Mine Road
West	Alameda Road	Hawthorne Road	Yellowstone Avenue
East	Alameda Road	Yellowstone Avenue	Jefferson Avenue
	Bannock Highway	Main Street	Portneuf Road
	Barton Road	South 4tth Avenue	American Road
West	Benton Street	Arthur Avenue	1st Avenue
East	Benton Street	1st Avenue	5th Avenue
East	Center Street	19tth Avenue	Hospital Way
West	Chubbuck Road	Philbin Road	Independence Avenue
East	Chubbuck Road	Yellowstone Avenue	Olympus Drive
	Flandro Drive	Hiline Road	Yellowstone Avenue
West	Gould Street	Arthur Avenue	1st Avenue
East	Gould Street	1st Street	Yellowstone Avenue
	Hiline Road	Tyhee Road	Alameda Road
	Kraft Road	0.1 miles W of Main St.	Main Street
	Olympus Drive	Chubbuck Road	Pocatello Creek Road
	Philbin Road	Tyhee Road	U.S. Highway 30
	Pocatello Avenue	Oak Street	4th/5th Couplet
	Pocatello Creek Road	.3 miles W. of Parks Rd.	Olympus Drive
	Poleline Road	Quinn Road	Garrett Way
West	Quinn Road	Yellowstone Avenue	Flandro Drive
	Siphon Road	Rio Vista Road	Hiline Road
	Tyhee Road	Philbin Road	Hiline Road
	US. Hwy 30	County Road	Gould Street
	Yellowstone Avenue	Tyhee Road	Oak Street

Table 5-4 Existing One-Way Arterials

Prefix	Street Name	From Street	To Street
North	4th Avenue	Sublett Street	Center Street
South	4th Avenue	Center Street	Swisher Road
North	5th Avenue	Sublett Street	Center Street
South	5th Avenue	Center Street	Swisher Road
North	Arthur Avenue	U.S. Highway 30	Center Street
South	Arthur Avenue	Center Street	W. Putnam Street
North	Main Street	U.S. Highway 30	Center Street
East	Center Street	Underpass	19th Avenue
West	Center Street	Arthur Avenue	Underpass
East	Clark Street	1st Avenue	19th Avenue
West	Lewis Street	Arthur Avenue	Union Pacific Avenue
North	Main Street	U.S. Highway 30	Center Street
South	Main Street	Center Street	W. Putnam Street
	Union Pacific Avenue	Center Street	W. Lewis Street

Table 5-5 Streets Requiring Modifications to Design Standards

Prefix	Street Name	From Street	To Street
West	Benton Street	Johnson Avenue	Arthur Avenue
West	Clark Street	Lincoln Avenue	Main Street
West	Chubbuck Road	Independence Avenue	Hawthorne Road
	Hawthorne Road	Quinn Road	Alameda Avenue
	Hawthorne Road	CanalStreet	Chubbuck Road
	Jefferson Avenue	Alameda Road	Oak Street
South	Johnson Avenue	Whitman Street	Benton Street
East	Oak Street	Yellowstone Avenue	15th Avenue
West	Whitman Street	Lincoln Avenue	Johnson Avenue

Map 5.2 Needed ROW for Existing Streets

Future Street Design Classification

6.1 Overview

The main concept of this plan is to modify the existing design standards for collector and arterial streets to allow for safer and smother traffic flow. This section provides the location of collectors and arterials within the urban areas. These locations are for planning and informational purposes. The exact location of these new facilities should be coordinated with the local public works departments with which the property exists.

6.2 Desired Outcome

The desired outcome of this section and plan is to establish a plan to provide the needed transportation system to serve future residents and businesses. The future street design map (see Map 6-1) provides the framework to link local streets and new developments to the existing system as well as provide missing connections. The second desired outcome is to provide enough ROW for each design class to provide flexibility for serving the transportation needs of today and tomorrow.

6.3 Placement Standards

Map 6-1 provides the location of the transportation system needed to serve the current comprehensive plans for Pocatello, Chubbuck, and Bannock County. The land use assumptions provided in these plans were used to model the transportation needs in 2025. The placement of the collectors and arterials was based on AASHTO guidelines modified for geographic conditions that exist in the Portneuf valley. Table 3-2 and Section 3.2 and 3.3 provide the guidelines for placement of new transportation facilities. These guidelines provide the framework needed to ensure the level of service standards are met using the assumed land use provided in the comprehensive plans. These assumptions should be reviewed prior to a final decision on the placement of collectors and arterials.

6.4 Street Transition Design

It is impossible to determine the exact need for a transportation system until that system and its associated land use are developed. This plan and the design standards will povide for most cases and provide flexibility to modify the cross section to fit existing conditions. The design standards presented in this plan are for build out of the system.

It is possible and very likely that development will not be contiguous with the existing transportation system. An isolated development might not warrant the design standards for that road design classification. In these cases the local jurisdiction can modify the curb-to-curb width to better fit the actual demand and need. The ROW and any required setbacks, however, should not be modified. Figure 6-1 provides an example of a Major Arterial transition. The example in Figure 6-1 demonstrates that a Major Arterial transition that can take place. Phase 1 can start

as a local street with a large landscape area between the roadway and the curb line. The forty feet of pavement may be striped with turn lanes or parking depending upon land use. Phase 2, the Major Arterial, is striped similar to an Arterial. Bike lanes and a center turn lane are added. Phase 3 is the final transition to the Major Arterial. This is only one example of transition from a roadway where the demand for the facility is before the development.

Providing for transitional development allows the city or county provide a reasonable requirement for developments not contiguous to existing development while providing for future capacity needed to serve the planned development.

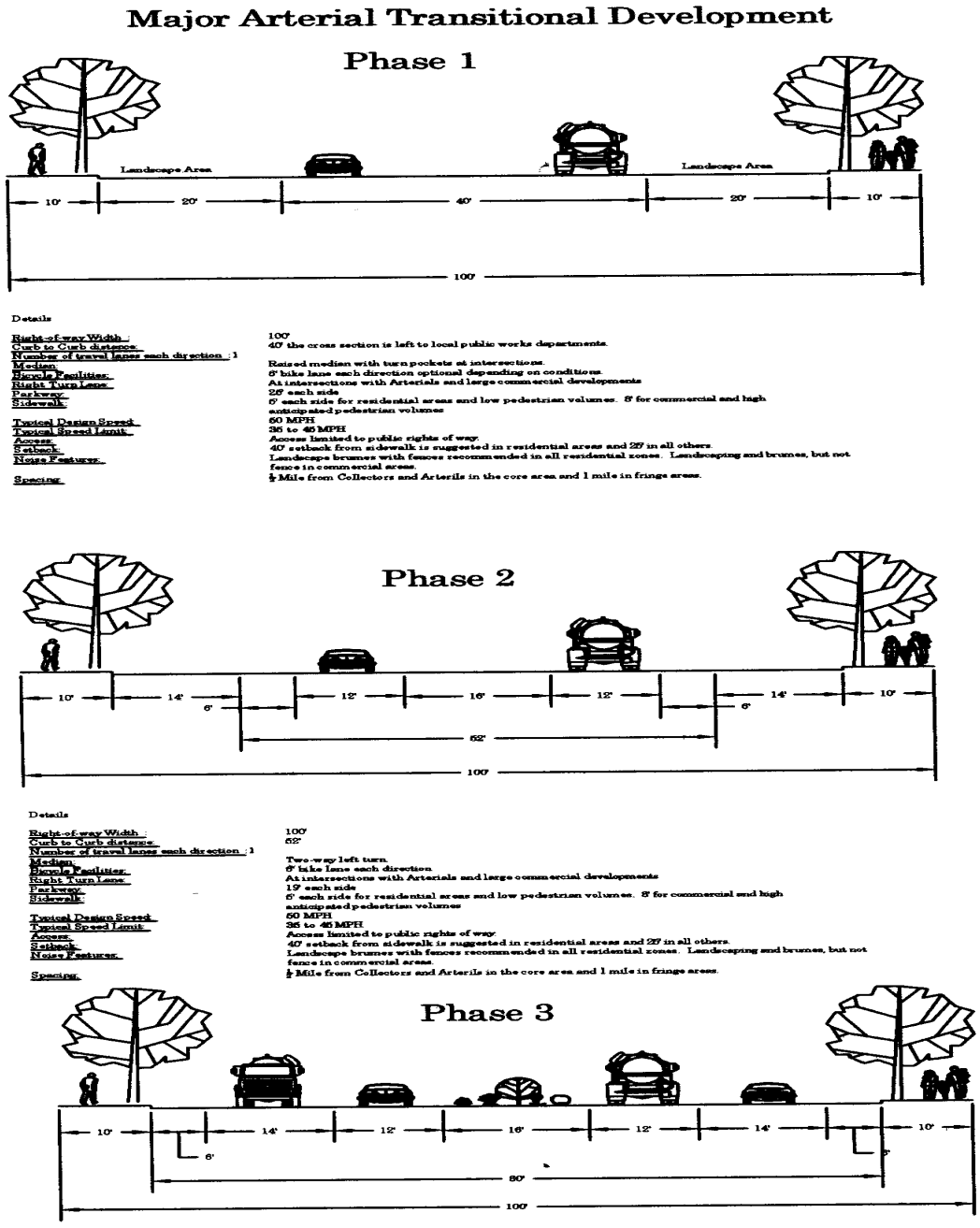


Figure 6-1 Example of a Major Arterial Transition Over Time

Map 6-1 Future Design Classification Map

Travel Demand Model Results

7.1 Introduction

Travel demand models are used by planning agencies to simulate existing and predict the traffic patterns given changes to the system. Traffic models can also be used to forecast future demand on the system to identify potential problem areas.

This plan uses BPO's TransCAD travel demand model to evaluate: 1) the impacts on the existing transportation system if no improvements were made or additional collectors and arterials built and; 2) the impacts if the proposed collector and arterial system are built. Both scenarios are for the year 2025 and use demographic data from the 2003 Bannock County Population, Housing Unit and Employment Forecasts report.

7.2 Current Roadway System

The current transportation system was evaluated to help establish the classification, cross section and ROW standards and to identify problem areas within the system. Section 3.3's first two steps used the evaluation results of the existing system in determining the classification of the individual roadway.

This section addresses the ability of identified roadways to meet the capacity standards identified in Section 4.3. Map 7-1 shows the volume-to-capacity ratio for the transportation system as it existed in 2003. In the 2003 system,116 centerline miles were included in the design classification system. By the year 2025 sixty percent of those miles will have volume-to-capacity ratios of 0.75 or greater. It is at this level that transportation planners start to look at possible solutions to impending congestion problems. Even of greater concern is that forty-three percent of the existing lane miles will have a volume-to-capacity ratio over 1.0 by 2025. At this rate the street is considered congested and improvements (street widening) should be made to upgrade the system. Upgrading these centerline miles at a conservative cost of one million dollars per centerline mile would cost over forty-three million dollars in current dollars. The projected budget for highway construction over that same period is fifteen million dollars.

Two main issues have led to this high percentage of congested streets. The first is the lack of adequate design of the street to meet future function of that specific street. This issue has been discussed in this report before. Many communities share this issue of street design not meeting the actual use of the roadway. If area streets were built to the design classification standards, only 1.45 miles would have a V/C ratio over .75. The second issue related to the high congestion is connectivity. Connectivity or street spacing is an issue in Chubbuck and in northeast and southwest Pocatello. BPO has not quantified this number for many reasons, but the impact would not be as great as building the streets to the width that is conducive to the function of the roadway.

Map 7-1 Existing Street System V/C Ratio in 2025

Transitional Development Plan

Throughout this document, we communicated the fact that existing communities have problems with congestion due to changes in a specific street purpose or community development patterns changing the trip patterns within the community. Some congested streets are also constant by the land-use and existing right-of-way to make modifications without undue cost. In the BPO planning area five such streets exist and they are: Hawthorne Road from Alameda Road to Canal Street; Jefferson Avenue from Alameda Road to Oak Street; Oak Street from Yellowstone Avenue to 15th Avenue; 12th Avenue from Oak Street to Memorial Drive and Clark and Center Streets from Union Pacific Avenue to Lincoln Avenue. Each of these five street segments the volume to capacity ratio and 2025 volumes warrant some roadway improvement, but the existing development and conditions will not reasonable allow widening to proposed standards.

The alternative to widening a street is modifications of the cross sectional design and traffic control devices to improve the capacity of a roadway without major widening. Addition of a left turn lane by restricting traffic or decreasing lane width can do a lot to relieve the deception of congestion or stopped traffic.

The next five sections are the proposed transitional plans for Hawthorne Road from Alameda Road to Canal Street; Jefferson Avenue from Alameda Road to Oak Street; 12th Avenue from Oak Street to Memorial Drive; and Clark and Center Streets from Union Pacific Avenue to Lincoln Avenue.

8.1 Hawthorne Road from Alameda Road to Quinn Road

8.1.1 Current Conditions

Hawthorne Road has an average ROW of 50 feet with a curb-to-curb width of 25 feet to 41 feet. The north end, south end, and the middle are the three segments of Hawthorne Avenue. The north end of the corridor terminating at Quinn Road has the smallest curb-to-curb distance, but the lot adjacent to the facility is larger than the middle. The middle segment from Robin to Eldredge Road is characterized by a narrow road and gravel shoulder. The average setback on the east side of the street is 25 feet. The west side has a larger setback of 35 feet. The southern end from Eldredge Road to Alameda Road is the only portion that has curb and gutter along most of the segment. This segment has the largest current curb-to-curb width of 41 feet.

Parking is allowed along the entire corridor, but is utilized most in the middle segment. There is a school along the majority of the facility and it helps to reduce speed. Zoning along Hawthorne Road is residential in the middle and north end and commercial in the south end.

Map 7-1 Existing Street System V/C Ratio in 2025

8.1.1.1 Average Volume

The average volume along Hawthorne Avenue ranges from 7,000 Annual Average Daily Traffic (AADT) on the north end to 10,000 at the south end.

8.2.1.2 Delay

In 2002 a delay study was completed that calculated the average speed for several corridors throughout the urban area. Hawthorne Road had the worst hour average speed of 22 MPH. This speed gives the corridor a level of service "B". The twenty-four hour capacity of the corridor is 13,000 AADT, therefore, the Volume to Capacity (V/C) ratio from 0.53 to 0.76 or near capacity.

8.1.2 Future Conditions

Traffic volume increases along the corridor, but at a slower rate than other parts of the community. The south end has a 2025 AADT of 15,000 while the north end has a 2025 AADT of 11,500. Only the south end approaches a V/C ratio of 1.0.

8.1.3 Traffic Issues

Left turning vehicles and the intersection with Quinn Road are two areas of concern based upon observations along Hawthorne Road. The route has a very narrow pavement section. On the east side of Hawthorne Road there are homes and one access road at Robin. The west side has seven local roads. Only three of the local roads provide connections to another collector or arterial. Most residents living on Ridge Street, Zener Street, Jensen Street, and Cottage Avenue use Hawthorne Road. Left turning vehicles tend to create congestion along the road in the AM and PM peaks.

Another area of concern is the intersection at Quinn Road**. Add more** need to get turning and other counts.

8.1.4 Transitional Plan Solutions to Traffic Concerns

Complete

8.1.5 Comparison to ROW and Width Standards and Modifications

Hawthorne Road is classified as an Arterial street with a ROW requirement of 80 feet. Given the current conditions, the needed ROW for this street is 30 feet or 15 feet on each side. The curb-

to-curb distance is 25 to 41 feet and the standard is 52 feet. The 2025 volume-to-capacity ratio is close to but not over 1.0, therefore, widening the road to the extent of the existing 50 feet of ROW. This would result in a three lane section with sidewalks and shared bike lanes and should be built the entire length. The intersection of Hawthorne Road and Quinn Road, the north end of the corridor, should be widened to the 80 feet width standard to accommodate a needed north bound right turn lane.

8.2 Jefferson Avenue from Alameda to Oak

8.2.1 Current Conditions

Jefferson Avenue has an average ROW of 50 feet with a curb-to-curb width of 38 feet. The north end, south end, and the corridor are the three distinctive segments of Jefferson Avenue. The 38 feet street is striped into two lanes and has parking along most of the corridor. The north end terminating at Alameda Road has three north bound lanes (left, through, right) and one south bound lane. The south ends in a tee intersection with Jefferson Street. There is a left and right turn lane south bound and one lane north bound. The intersection of Poplar Street and Cedar Street has one turn lane achieved by removing parking. The intersection of Jefferson Avenue and Pine Street is a signalized intersection with left turn pockets and a protected phase.

8.2.1.1 Average Volume

Jefferson Avenue has an Average Annual Daily Traffic (AADT) of 14,000 along the corridor. The directional split is 56 percent north and 44 percent south bound on the north portion of the corridor to an even directional split at the south end.

8.2.1.2 Delay

In 2002 a delay study was completed that calculated the average speed for several corridors throughout the urban area. Jefferson Avenue had the worst hour average speed of 23 MPH. This mileage gave the corridor a level of service of “B”. The twenty-four hour capacity of the corridor is 13,000 AADT, therefore, the volume-to-capacity (V/C) ratio is 1.0 or at capacity. The Idaho Transportation Department uses a ratio of free flow time to congested time with a ratio of 1.5 being congested. Using this formula, Jefferson Avenue has a congestion ratio of 1.45 in 2003.

8.2.1.3 Future Conditions

Jefferson Avenue is located in the middle of the existing community. The demographic and comprehensive plans of both Pocatello and Chubbuck have development going away from the core of the community. The travel demand model shows this trend by modeling a peek in traffic volumes in 2020 of near 20,000 AADT going down to 18,500 AADT in 2025. The capacity for this type of facility is 13,000 in the two lane sections to 19,000 in the three lanes sections.

8.2.2 Traffic Issues

Left turning vehicles, residential traffic entering and exiting Jefferson Avenue, and the intersections of Alameda Road and Oak Street are the three areas of concern based upon observations along Jefferson Avenue. As traffic volumes increase to the 2015 peak, these issues will continue to grow. Only three of the six intersections along the corridor have left turn pockets. These are located in the north section of the corridor at Pine Street, Poplar Street, and Cedar Street. Residential traffic backing out onto the facility is a problem, but is one that should not increase with time due to the build environment of the corridor. The last issue is the two ends of the corridor. The north intersection of Alameda Road and Jefferson Street is a problem area for all four legs. The intersection is further complicated with the proximity of East Alameda Road to the primary intersection. The LOS of the intersection is "E" to "F" for the peak periods. The south end of the corridor has a tee intersection with Oak Street. This intersection suffers from a small radius and fixed signal timing of the intersection. These problems have been addressed this year and time should tell how much improvement was made.

8.2.3 Transitional Plan Solutions to Traffic Concerns

The primary purpose of the transitional plan is to recommend a stop gap measures that utilizes existing ROW to delay or eliminate the need for major street widening and property acquisition.

Table 1 Short Term Solutions for Jefferson Avenue

Improve radius at intersection of Cedar Street and Jefferson Avenue	Purchase property on two sides of Cedar Street
Add left turn bay south bound at Walnut Street	Remove 140 feet parking east side north from Walnut Street. This would allow three 10' lanes
Add left turn bay north bound at Maple Street	Remove 140 feet parking east side north from Maple Street. Remove 110 feet parking west side north from Maple Street. This would allow three 12' lanes

Table 2 Medium Term Solutions for Jefferson Avenue

Left turn pocket at all intersections	Remove on street parking along Jefferson Avenue and construct off street parking for those without parking
Improve intersection of Alameda Road and Jefferson Avenue	Add section south bound travel lane
Construct four lanes from Poplar Street to Alameda Road	Require purchase of five feet each side and removal of parking. All properties currently have off street parking

Table 3 Recommended Changes to Design Standards

Section	Recommendation	Implementation
Jefferson Avenue from Alameda Road to Cedar Street	Increase to four lanes and from Cedar Street north. ROW requirement would not change	No change to standard
Jefferson Avenue from Cedar Street to Poplar Street	52 feed curb-to-curb and 62 feet ROW	ROW increase from 50 feet to 62 feet with all coming from east side of road
Jefferson Avenue from Poplar Street to Elm Street	52 feed curb-to-curb and 62 feet ROW	ROW increased from 50 feet to 62 feet with even division of needed ROW
Jefferson Avenue from Elm Street to Jefferson Avenue	Keep existing configuration	No change to standard

8.3 Oak Street from Yellowstone to 15th

8.3.1 Current Conditions

8.3.1.1 Average Volume

8.3.1.2 Delay

8.3.1.3 Future Conditions

8.3.2 Traffic Issues

8.3.3 Transitional Plan Solutions to Traffic Concerns

8.3.4 Comparison to ROW and Width Standards and Modifications

8.4 12th Avenue from Oak Street to Memorial

8.3.1 Current Conditions

8.4.1.1 Average Volume

8.4.1.2 Delay

8.4.1.3 Future Conditions

8.4.2 Traffic Issues

8.4.3 Transitional Plan Solutions to Traffic Concerns

8.4.4 Comparison to ROW and Width Standards and Modifications

8.5 East Clark Street from Union Pacific Avenue to Lincoln Avenue

8.5.1 Current Conditions

East Clark Street is located in the original town site. This neighborhood is characterized by narrow streets and a pedestrian-orientated nature. The ROW on Clark Street is 60 feet and the curb-to-curb distance is 37 feet with parking on both sides. A large 8 foot planter street exists from the Portneuf River west. Clark Street is one of four collectors that serve the west bench area. The traffic volume on these collectors average 2,000 vehicles per day which is well below the capacity for even a local street.

Clark Street is identified in the transitional zone because of the potential growth of housing above Lincoln Avenue. If developed, the traffic volumes could reach over 15,000 vehicles per day. Clark Street has a 60 foot ROW and could be widened to allow five lanes without parking. This action is not in keeping with community goals of BPO or City of Pocatello. The impact to the residents within the area as a result of the major widening would out weigh the benefits.

8.5.1.1 Average Volume

The average daily volume is 2,000 on Clark Street and Center Street.

8.5.1.2 Future Conditions

The future conditions are a direct result of potential development west of Lincoln Avenue. If the planned zoning in the Pocatello Comprehensive Plan is carried out, the potential traffic volumes on Clark Street would exceed 15,000 vehicles per day.

8.5.1.3 Traffic Issues

The traffic issues on this street are related to through movement of vehicles from the Main/Arthur couplet and West Clark/West Center couplet. Vehicles going to or from the west Clark development would need to wind their way through the neighborhood to the two lanes on Clark Street. The pressure of 15,000 vehicles per day would cause an

impact to the surrounding area.

8.5.2 Transitional Plan Solutions to Traffic Concerns

The transition plan on this route is not a strategy to widening the road or to remove parking on both sides of the street. The strategy is to provide a better connection to the downtown area while minimizing the impact to surrounding areas. The purpose is to convert Clark and Center Streets into a one-way couplet. This couplet would connect to Main and Arthur Streets. The couplet would allow the existing lane configuration to remain on Clark Street and require minimal changes on Center Street. The plan would require a new connection from Clark Street to Center Street west of Lincoln Avenue.

8.5.3 Comparison to TOW and Width Standards and Modifications

Future Acquisition Map

9.1 Overview

The Future Acquisition Map is a tool that can be used by local jurisdictions to identify areas that are needed for public spaces. These public spaces can include parks, schools, public buildings, and roads. The MSP identifies the design needed to meet the requirements of the Pocatello/Chubbuck area today and in the future. The needed right-of-way is identified by existing and future streets. This section is not the map but a listing of needed ROW by route on a line map. The previous sections build to this map and cannot be achieved without development, approval and implementation of the map.

9.2 Needed Right-of-Way

Recommended Changes to Local Ordinances

The MSP changes the requirement of collector and arterial streets within the BPO Planning Boundary. The MSP also modifies the definition of each of the various street classifications. The MSP has been developed with the assistance of local community's residents, staff, and elected officials. This section of the MSP provides suggested modifications in existing city ordinances to adopt the proposed street classification and ROW standards. The section will also provide recommended new sections to cover the future acquisition map.

10.1 Modifications to Chubbuck City Code 16.12.020 Streets

Red Line correction methods will be used to modify the above city code to reflect changes required to comply with the MSP.

A. The arrangements, character, extent, width, grade and location of all streets shall conform to the Comprehensive Plan and the Master Street Map, shall integrate harmoniously with existing and planned streets, shall be appropriate to topographical conditions, shall enhance the public convenience and safety and shall facilitate the proposed uses of the land to be served by such streets.

B. Local residential streets shall be designed to discourage their use by through traffic. Where a development abuts or contains an existing or proposed arterial street (as described below), railroad or limited access highway, the City may require frontage streets, reverse frontage streets, or such other treatment for the appropriate use of the tract.

C. There shall be provided rights of way of such width and as provided in the Comprehensive Plan; provided, however, that the width of said right of way shall in no case be less than the following:

Right-of-Way Type of Street	Curb Width	Face-to-Face
Major arterial (major thoroughfare carrying traffic into and out of the city)	~~80~~ 100 feet	~~64~~ 80 feet
~~Minor a~~ Arterial (carries high traffic volumes onto and from other arterial, collector and local roads)	~~66~~ 80 feet	52 feet
Collector (medium density carrier of the traffic between neighborhoods and districts of the city)	~~60~~ 70 feet	~~46~~ 50 feet
Local (low density carrier of the traffic within neighborhoods and districts of the city)	50 feet	39 feet

Types of streets within a development shall be determined by the City Engineer, consistent with the Comprehensive Plan and Master Street Map.

D. Cul-de-sac streets shall terminate in a circular turnaround with the right-of-way radius of at least fifty five feet (55'). The City Engineer may approve an equally convenient form of turning space where extreme conditions justify. The maximum length shall not exceed four hundred feet (400') from the entrance to the center of the turnaround, unless the City Engineer finds that greater length will permit better development of the subject property.

E. Dead-end streets will not be approved except in locations designated by the City Engineer as necessary to future extensions in development of adjacent lands. In any case, a dead-end street serving more than four (4) lots shall provide by easement a temporary turning circle with a forty foot (40') radius or other acceptable design to accomplish adequate access.

F. Loop streets shall be limited to a maximum length of two thousand feet (2,000').

G. Streets shall be planned to intersect as nearly as possible at right angles, but in no event at less than seventy degrees (70o). Streets intersecting an arterial shall do so at a ninety degree (90o) angle.

H. Where any street deflects at an angle of ten degrees (10o) or more, a connection curve shall be required having a minimum center line radius of three hundred feet (300') for arterial and collector streets and one hundred twenty five feet (125') for local streets.

I. Streets with center line offsets of less than one hundred twenty five feet (125') shall be avoided.

J. A tangent at least one hundred feet (100') long shall be provided between reverse curves on arterial and collector streets.

K. At street intersections, property line corners shall be rounded by a circular arc, said arc having a minimum tangent length of twenty feet (20').

L. Street intersections with more than four (4) legs and Y-type intersections where legs meet at acute angles shall be avoided. "T" intersections, rather than "cross" intersections, shall be utilized to the maximum extent possible in residential developments.

M. Maximum and minimum grades for all streets shall be as determined by the City Engineer.

N. Alleys, twenty feet (20'), when single-family residence units abut both sides; twenty four feet (24') if abutting multiple-family, commercial, or industrial districts. Dead-end alleys shall be avoided.

O. Streets shall be extended to the boundary lines of the development, unless prevented by topography or other physical conditions or unless the City Engineer determines that such extension is not desirable for coordination of the development with the existing layout or the most advantageous future development of adjacent tracts. However, streets carrying nonresidential traffic, especially truck traffic, shall not normally be extended to the boundaries of adjacent existing or potential residential areas, or connected to streets intended for predominantly residential traffic.

P. Excessively long, straight local streets in residential areas, conducive to high-speed traffic, shall be prohibited according to the determination of the City Engineer.

Q. Pedestrian walks on both sides of a street, within the street right of way, together with concrete curbs and gutters approved by the City Engineer, and paved vehicular traffic area, shall be required on all streets in a proposed development.

R. Access to streets shall conform to the "standard approach policy" promulgated by the Division of Highways, State Department of Transportation. (Ord. 411 § 1, 1994: Ord. 372 § 1, 1992).

10.2 New Sections to Chubbuck City Code

The MSP proposes using Idaho Code future acquisition map requirements to identify the required ROW on various roadways within the City of Chubbuck. The MSP also calls for the creation of an official Master Street Map to identify the approximate location of collectors and arterials. Neither of these two provisions is in Chubbuck's Current code. The following is only recommended language for inclusion into the city code.

10.2.1 Future Acquisition Map

This title is intended to comply with, but is not limited to, the requirement that municipalities enact zoning ordinances under the local planning act of 1975, and amendments thereto, all as set forth in Idaho Code section 67-6517.

A. The future acquisition map shall be adopted by the City Council identifying the roadways or other lands that the City requires for construction or alteration of roadways.
B. The future acquisition map will include at a minimum:
   1. Centerline drawing of the roadways identifying ROW needed.
   2. Planametric drawing of affected parcels.
C. Future Acquisition Area: the following shall apply to approvals or permits subject to provisions of this chapter.
   1. Any preliminary of final subdivision, short plan, planned unit development, binding site plane, site development plan and road plans shall clearly show the location of the future right-of-way (future acquisition area) boundary, including the

width dimensions.
2. Since the Future Acquisition Area is the area where the roadway will be expanded, a title notice shall be completed and recorded with the County Clerk's Office. The notice shall:
a. Include the tax parcel number;
b. Include the name of the street, if appropriate;
c. Include the width of the future acquisition area;
d. Be mailed to the property owner's address as shown in the current Bannock County assessors records, if a complete mailing address is indicated.
3. The title notice shall be amended or removed when future acquisitions map or other conditions changes and the notice is no longer valid. Property owners shall be notified of the change.

10.4.2 Procedures for acquiring property identified in the future acquisition map

A. Upon receipt of a request for a permit the zoning or zoning commission or the governing board shall notify the city public works department.

B. Within thirty days of the date of that notice, the public agency may, in writing, request the commission or governing board to suspend consideration of the permit for sixty (60) days from the date of the request to allow the public agency to negotiate with the land owner to obtain an option to purchase the land, acquire the land, or institute condemnation proceedings as may be authorized in the Idaho Code. If the public agency fails to do so within the sixty (60) days the commission or governing board shall resume consideration of the permit.

10.4.3 Master Street Plan

The location and design of all collectors and arterials shall be in accordance with the Comprehensive Plan and the Master Street Plan (MSP) as adopted by Bannock Planning Organization on _____ as may from time to time be amended.

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