GILLETTE ADA TRANSITION PLAN

May 2022

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1.0 INTRODUCTION

The City of Gillette Americans with Disabilities Act (ADA) Transition Plan (plan) is intended to direct the city's efforts to provide accessible facilities within the corporate limits of the City. The purpose of the plan is to provide guidance for removal of accessibility barriers. The plan provides an overview of Gillette's ADA program, outlines Gillette's mission and ADA policy, and identifies methods to assist Gillette in complying with ADA regulations. The plan is intended to be a living document to reflect the current Gillette ADA program and compliance status. Attachments to the plan will be updated as needed to outline accomplishments to date and future actions necessary to enable ADA compliance.

1.1 City of Gillette Assets

This plan applies specifically to facilities owned, operated, and maintained by the City of Gillette and incorporates applicable ADA policies and practices by reference. Figure 1 shows is an overall map of the City of Gillette, which includes the City's corporate boundary as of March 2021 and depicts various city-owned facilities. Facilities owned, operated, and maintained by the City of Gillette include streets, pathways, parks, rights of way, and traffic signals. Members of the public regularly require access to City facilities during hours of business and throughout the year.

There are numerous other public entities which own and operate facilities located within or passing through the City of Gillette including, but not limited to Campbell County, local special districts (recreation, hospital, cemetery, etc.), Campbell County School District, and the Wyoming Department of Transportation (WYDOT). WYDOT has established a state-wide ADA transition plan for its facilities, including those located in Gillette. WYDOT facilities and facilities owned by other local entities are not included in this ADA transition plan.

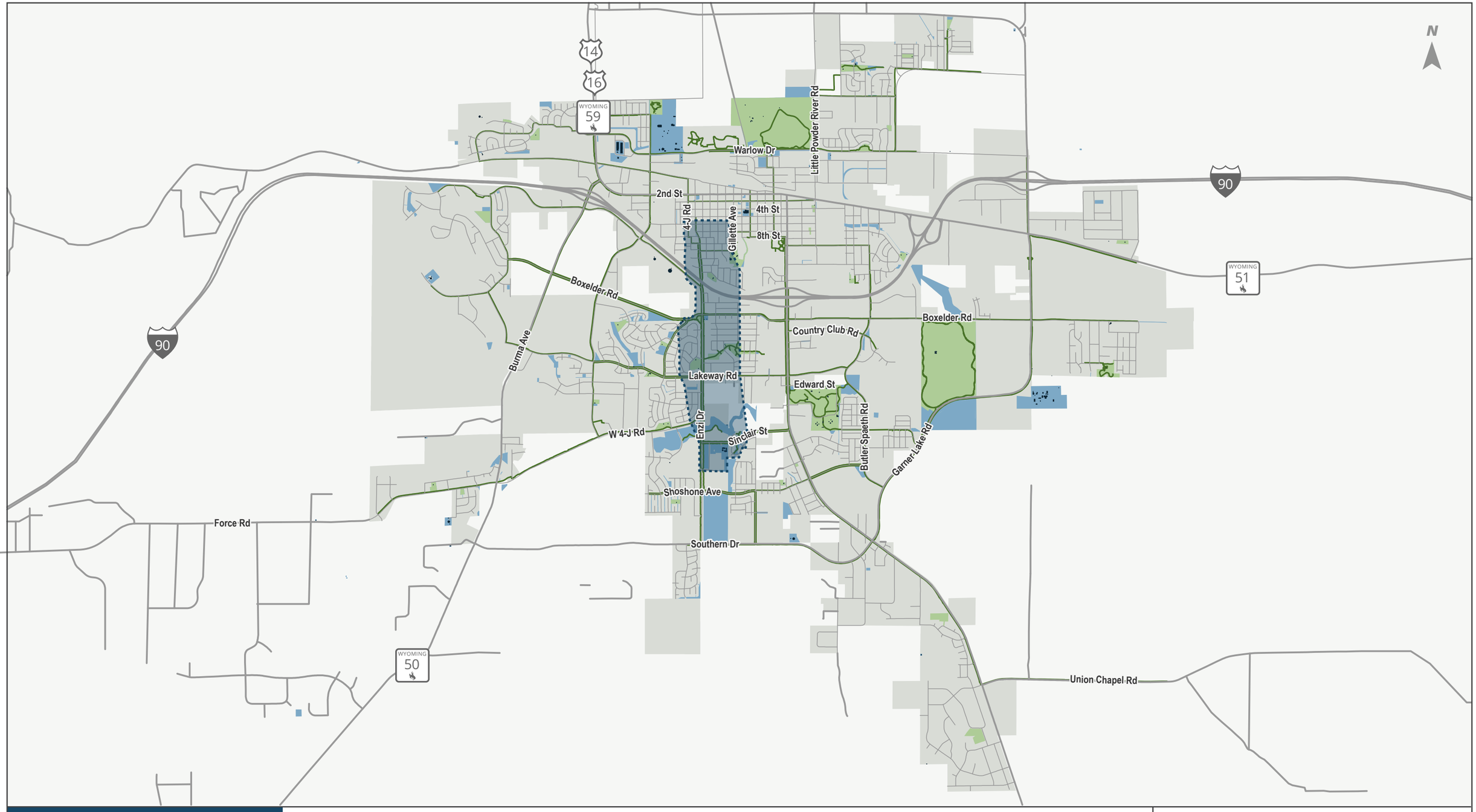
1.2 Regulatory Framework

This section of the ADA Transition Plan addresses the regulatory framework which the City of Gillette is required to adhere to with respect to accessibility. Applicable local and state regulations focus on physical features rather than human rights. Applicable federal regulations drive the requirement to provide accessibility, specifically Title II of the Americans with Disabilities Act. The following identifies local, state, and federal requirements to the City of Gillette ADA Transition Plan.

1.2.1 City of Gillette

Relevant city codes and regulations pertaining to the ADA accessibility and related issues include the following key documents:

- City of Gillette Codes
- Subdivision Regulations (Ordinance No. 3727), dated July 2011
- Zoning Ordinance (Ordinance No. 979), dated December 2018
- 2020 Design Standards (Ordinance No. 3988), dated December 2020
- 2020 Standard Construction Specifications (Ordinance No. 3988), dated December 2020



GILLETTE ADA TRANSITION PLAN

ENERGY CAPITAL OF THE NATION · GILLETTE, WYOMING

ADA Study Area
City Limits
City-owned Buildings
Existing Pathways
City Right-of-Ways
County or State Right-of-Ways
City-owned Parcels
City Parks

**The Gillette ADA Transition Plan will help to enhance access to these facilities by providing guidance to future capital improvement projects.*

City of Gillette Physical Assets

November 2021

Figure 1

1.2.1.1 City of Gillette Codes, Chapter 18, Streets and Sidewalks

- References in this section relevant to ADA pertain to maintenance and repair of sidewalks.

1.2.1.2 City of Gillette Subdivision Regulations

Article V Subdivision Improvements:

- Section 3.b Pedestrian and Bicycle Systems
  All aspects of the pedestrian system, including sidewalks and intersection crossings, shall be designed and constructed to comply with the Americans with Disabilities Act.

- Section 3.e Curbs, Gutters, and Shoulders
  Curbing must comply with City of Gillette Engineering Design and construction Standards and provide ramps for accessibility consistent with ADA.

- Section 3.f Sidewalks and Pedestrian Ways
  Sidewalks must comply with City of Gillette Engineering Design and construction Standards.
  Sidewalks, crossings, and other segments of a continuous pedestrian system shall comply with standards of the ADA.

- Section 3.g Bikeways and Recreational Trails
  All trails shall comply with ADA.

1.2.1.3 City of Gillette 2020 Design Standards

- Section 504 – Design of Concrete Sidewalks and Curb Ramps
  - Slopes
  - Landings
  - Detectable Warning Panels (DWD)
  - Parallel Curb Ramps
- Section 611 – Street Geometrics
  - 6.11.07 SIDEWALKS, CURB AND GUTTER, CURB RAMPS, AND DRIVEWAYS
  - 6.11.11 STREET LIGHTING
  - 6.11.13 DRAINAGE
- Standard Design Drawings and Details
  - Detail drawing numbers 02530-01 through 02530-11

1.2.1.4 City of Gillette 2020 Standard Specifications

- Section 02530 details specifications for Colored Detectable Warning Panels (DWD).

Current City of Gillette standards and policies do not identify any specific human or civil rights language, but rather are focused on accessibility improvements associated with implementation. Local policy then defaults to Wyoming Statutes and federal codes, which are addressed later in this document.

1.2.2 State of Wyoming

A review of current ADA and accessibility requirements was conducted via internet keyword search of The Wyoming Constitution and Title 1 through Title 99 of current Wyoming State Statutes. The following is a list of statutes (by title) which had hits on the keywords from this search and which pertain to ADA access:

- Title 9: Administration of the Government
- Title 16: City, County, State, and Local Powers
- Title 31: Motor Vehicles
- Title 35: Public Health and Safety

In reviewing these statutes, it appears the key accessibility requirements directly applicable to the City of Gillette are contained in Title 16, section 6 and pertain specifically to buildings.

While these statutes pertain to cities and towns, the language refers to the “state fire marshal” in several locations. The City of Gillette has previously requested and received local jurisdiction for public safety for all buildings and facilities within city limits. Wyoming Statutes Section 35-9-121 confirms the process for delegation of local jurisdiction and this delegation is documented in a letter to the City dated September 16, 2011 from the State Department of Fire Prevention and Electrical Safety. Therefore, where the Title 16 language refers to the state fire marshal (or designee), by delegation this applies to the City of Gillette, provided the City maintains its status as the Authority Having Jurisdiction (AHJ). Buildings and associated facilities have been included as part of the regulatory review for this transition plan but are not further addressed in this document.

1.2.3 Federal Requirements

The following federal policy pertains to the City of Gillette ADA Transition Plan. Title II of the Americans with Disabilities Act is the primary policy driving local transition plans.

1.2.3.1 Section 504 of the Rehabilitation Act of 1973

Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of disability by any program or activity receiving federal financial assistance. Discrimination may consist of exclusion from participation in or denial of the benefits of programs and activities operated by a department, agency, or other instrumentality of state or local government.

1.2.3.2 Title II of the Americans with Disabilities Act (ADA) of 1990

The Americans with Disabilities Act of 1990 expands on the foundation laid by Section 504 by prohibiting discrimination on the basis of disability by public entities regardless of whether they receive federal financial assistance. The Act is divided into five titles describing requirements relating to (I) employment, (II) state and local government services, (III) public accommodations, (IV) telecommunications, and (V) miscellaneous provisions. Title II of the Act applies specifically to state and local government services and the programs and activities they administer, including features built before and after 1990. Titles I, III, IV, and V are not addressed further in the Gillette ADA Transition Plan.

1.2.3.3 ADA Implementing Regulations

The Code of Federal Regulations (CFR) outlines regulations implementing Title II of the ADA, which apply to public entities. Table 1 summarizes relevant Gillette responsibilities under Title II of the ADA as implemented by the United States Department of Justice (DOJ).

Public entities employing 50 or more persons must develop a document called a transition plan outlining the steps necessary to complete any structural changes (i.e., changes to physical assets) to achieve program compliance. At a minimum, the plan must meet the requirements stated in 28 CFR 35.150(d)(3) as follows:

i. Identify physical obstacles in the public entity's facilities that limit the accessibility of its programs or activities to individuals with disabilities.
ii. Describe in detail the methods that will be used to make the facilities accessible.
iii. Specify the schedule for taking the steps necessary to achieve compliance with this section and, if the time period of the transition plan is longer than one year, identify steps that will be taken during each year of the transition period.
iv. Indicate the official responsible for implementation of the plan.

As part of the transition plan, public entities responsible for streets, roads, or walkways must include a schedule for providing curb ramps or other sloped areas where pedestrian walks cross curbs, giving priority to walkways serving state and local government facilities, transportation, places of public accommodation, and employers, followed by walkways serving other areas (23 CFR 35.150(d)(2)).

The Gillette ADA transition plan addresses plan requirements relating to exterior physical assets, including rights-of-way owned and maintained by the City of Gillette. Right-of-way features include elements such as curb ramps, sidewalks, crosswalks, and push button signals. In addition to minimum requirements, the Gillette ADA transition plan addresses other elements outlined in Title II of the ADA related to administration, communications, and maintenance. This Gillette ADA transition plan currently does not address parking lots, buildings and interior physical assets located within buildings.

Public entities must provide an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the development of the transition plan by submitting comments. A copy of the transition plan was made available for public inspection (28 CFR 35.150(d)(1)) as a draft and final document. Public participation and document availability are discussed in more detail in Chapter 5.0 of this document.

Table 1: Summary of Responsibilities under Title II of the ADA

Implementing Regulation	Responsibilities
28 CFR 35.105	**Self-Evaluation** • Evaluate current services, policies, and practices and make any necessary modifications to meet ADA requirements. • Provide an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the self-evaluation process by submitting comments. • Maintain a list of interested persons consulted, a description of areas examined and any problems identified, and a description of any modifications made.
28 CFR 35.106	**Notice** • Make ADA information available to the public regarding applicability to City of Gillette services, programs, and activities.
28 CFR 35.107	**Responsible Employee/Grievance Procedures** • Designate a responsible employee to coordinate ADA efforts; provide the ADA coordinator's name, office address, and telephone number. • Adopt and publish grievance procedures providing for prompt and equitable resolution of complaints.
28 CFR 35.130; 28 CFR 35.149	**General Prohibitions Against Discrimination** • Do not exclude disabled persons from participation in or deny benefits of City of Gillette services, programs, or activities. • Do not discriminate on the basis of disability.
28 CFR 35.133	**Maintenance** • Maintain facilities and equipment required to be accessible to persons with disabilities in operable working condition.
28 CFR 35.150	**Existing Facilities** • Operate each service, program, or activity in a manner accessible to and usable by individuals with disabilities. • Alter existing facilities or construct new facilities as necessary to comply with ADA requirements. • Develop a transition plan outlining steps necessary to complete structural changes to facilities.
28 CFR 35.151	**New Construction and Alterations** • Design, construct, and alter public facilities in a manner readily accessible to and usable by individuals with disabilities, unless structurally impracticable. • Provide curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway.
28 CFR 35.160; 28 CFR 35.161	**Communications/Telecommunications** • Ensure effective communications with disabled persons. • Provide appropriate auxiliary aids and services to afford disabled individuals an equal opportunity to participate in and enjoy the benefits of City of Gillette services, programs, and activities.
28 CFR 35.163	**Information and Signage** • Provide information about the existence and location of accessible services, activities, and facilities. • Provide signage at all inaccessible building entrances directing users to an accessible entrance that is denoted with the international symbol for accessibility.

Note: Additional responsibilities detailed in 28 CFR Section 35 (e.g., related to employment discrimination) are not included in this transition plan.

1.3 ADA Policy Statement and Gillette Vision/Mission

The City of Gillette is committed to providing programs, services, and activities in accordance with the Americans with Disabilities Act, the Americans with Disabilities Amendments Act, State of Wyoming and City of Gillette requirements. The City of Gillette has adopted the following vision, mission and service goals:

VISION STATEMENT FOR OUR FUTURE:

GILLETTE IS A GROWING CITY WITH A STRONG LOCAL ECONOMY AND SERVES AS A MAJOR REGIONAL CENTER. OUR GILLETTE COMMUNITY IS FRIENDLY FOR FAMILIES, SUPPORTS AN ACTIVE LIFESTYLE AND IS ATTRACTIVE AND AESTHETICALLY PLEASING.

OUR MISSION:

GILLETTE CITY GOVERNMENT IS FINANCIALLY RESPONSIBLE, PROVIDES QUALITY CUSTOMER-FRIENDLY SERVICES AND HAS FIRST CLASS CITY INFRASTRUCTURE & FACILITIES.

SERVICE WITH PRIDE:

Productivity: *Do it Right, Do It Efficiently*
Responsibility: *Own It, Solve it – Together*
Integrity: *Consistently Do the Right Thing – For the Right Reason*
Dedication: *Supporting Continuous Improvement Through Teamwork and Loyalty*
Enthusiasm: *Enjoying Your Job and Going the Extra Mile.*

In fulfilling its vision, mission and service goals, the City of Gillette recognizes the importance of providing equitable access to all members of the public. Accessible rights-of-way in the City of Gillette provide critical access to government services and facilitate independence and self-sufficiency, quality of life, participation in the work force, and meaningful social and economic contributions to society. The Gillette ADA transition plan is an important step in helping the City of Gillette move toward eliminating barriers and providing equitable opportunities for disabled individuals to access programs, rights-of-way, and building facilities.

In support of the City of Gillette Vision and Mission, the following chapters outline methods the City of Gillette uses to make its programs, rights-of-way accessible to individuals with disabilities in fulfillment of 28 CFR 35.150(d)(3)(ii).

2.0 ADMINISTRATIVE REQUIREMENTS

2.1 ADA Coordinator

ADA implementing regulations require public entities to designate at least one employee to coordinate efforts to comply with and carry out ADA responsibilities.

The City of Gillette's ADA Coordinator will be the City Clerk (or designee). Gillette's ADA coordinator is responsible for guiding Gillette's program to ensure people with disabilities have equitable opportunities to access government facilities and services within the City of Gillette.

The City ADA coordinator oversees and guides implementation of this plan to provide accessible public rights-of-way and facilities. The coordinator is a city-wide resource for ADA policies and procedures in support of the plan. Other responsibilities of the coordinator include responding to ADA inquiries and requests for accessible materials or auxiliary aids and services. Contact information and role descriptions for the City of Gillette ADA coordinator are provided on the city's website.

The City of Gillette welcomes feedback from individuals and organizations representing the disability community. Gillette strives to consider all comments to assure the disability community is accurately represented in Gillette's ADA program.

2.2 Public Notice

Under Title II, the City must make information about ADA requirements pertaining to its services, programs, and activities available to the public. Within the City's website, the city has established and maintained a description of the ADA program; ADA coordinator contact information; links to the City's public notice document, grievance procedures form, and accommodations request; and links to other ADA-related design information and applicable federal regulations.

2.3 Grievance Procedure

Public entities employing at least 50 people are required to adopt and publish grievance procedures providing prompt and equitable resolution of complaints. The City of Gillette's grievance procedure and form are located on the ADA Section of the City's website and are included in Appendix A. The grievance procedure provides a mechanism to document and track complaints. The City of Gillette reviews public feedback and inquiries and provides an appropriate response to each comment.

2.4 Communications

Government agencies must communicate and interact effectively with the public. The City of Gillette generally provides requested auxiliary aids and services to promote equally effective communication to qualified individuals with disabilities who wish to participate in programs, services, and activities offered by city. Appropriate auxiliary aids and services may include, but are not limited to, qualified sign language interpreters, amplified hearing devices, or other methods to promote effective communication. The City will provide alternative formats of written communications upon request (e.g., Braille, electronic, audio).

The City does not place surcharges on individuals with disabilities to offset the cost of providing auxiliary aids, services, or reasonable modifications. For example, the City will not charge participants for the services of an interpreter when the participant is attending a program, service, or activity offered by the City.

3.0 EXTERIOR PHYSICAL ASSETS

Under Title II of the ADA, the City of Gillette must assure all its physical assets are ADA compliant, including existing and newly-constructed features. Gillette's ADA-related physical assets are divided into two categories. Exterior assets include right-of-way features such as curb ramps, sidewalks, crosswalks, pedestrian ramps, and parking stalls.

ADA-compliant features are designed and constructed in a manner readily accessible and usable by individuals with disabilities. Examples of non-compliant accessibility barriers include steep curb ramp slopes that might hinder a person in a wheelchair or sidewalk discontinuities that may cause trip hazards. Appendix B includes a list of exterior facilities and typical compliance standards.

A self-evaluation of physical assets is necessary to indicate where physical barriers limit accessibility within the rights-of-way the City of Gillette owns and maintains. The self-evaluation provides a baseline against which progress can be measured, making the process critical to the success of the transition plan. The following sections discuss the methods used to inventory ADA related exterior physical assets and determine ADA compliance.

3.1 Inventory Method

The City of Gillette began assessment of its exterior ADA features in late 2020 and early 2021. The initial data collection method utilized a mobile device in conjunction with a cloud-based application to capture spatial location and associated ADA measurements of each ADA feature. Feature elements were measured using a measuring tape and digital level. Measurements were recorded using a consistent methodology that included measurement of the most restrictive condition. For example, curb ramp slope measurements were taken at several locations within each ramp, but only the most restrictive or worst-case measurement was recorded. This technique established the baseline parameters against which progress towards overall compliance can be measured. Office-based quality control procedures were performed on each feature element of the baseline inventory to check for completeness and identify any obvious errors or inaccuracies. The 2020/2021 data collection effort resulted in four attribute tables describing curb ramps, push buttons, crosswalks, and sidewalks within 25 feet of the ramp.

The City of Gillette maintains a geodatabase of ADA features and updates the inventory as new improvements are constructed and accessibility barriers are removed. The database enables the City of Gillette to query data, summarize data sets in output reports, conduct annual reporting, and identify progress toward compliance.

3.2 Compliance Status

The Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Public Rights-of-Way Accessibility Guidelines (PROWAG) provide guidance for design of accessible features on new construction and alterations.

The U.S. Access Board developed ADAAG in 1991 and continues to maintain these guidelines for the design of accessible buildings and facilities. ADAAG focuses mainly on buildings and site work and generally does not address conditions unique to public rights-of-way. In 2010, the Department of Justice (DOJ) and the U.S. Department of Transportation adopted enforceable accessibility standards called the 2010 ADA Standards for Accessible Design (2010 Standards). The 2010 Standards are based on ADAAG. Due to the need for accessibility guidelines specific to the public rights-of-way, the Access Board developed the PROWAG, which is the current set of guidelines for design of accessible features in public rights-of-way. PROWAG will become enforceable when the DOJ issues regulations adopting them as standards.

ADAAG and PROWAG provide guidance for determining feature compliance based on a series of element measurements for each feature type. The guidelines establish minimum and maximum measurement tolerances for each feature element. For example, curb ramp cross slope is one element measured as part of curb ramp compliance. The maximum allowable curb ramp cross slope is two percent. If the curb ramp cross slope measurement is greater than two percent, the curb ramp is not ADA compliant per PROWAG guidelines.

3.2.1 Inventory Summary

As part of this ADA transition plan, the City's facilities were inventoried with a boundary established by city staff. The initial boundary is about 1/10 of the current city area and remaining areas will be scheduled for inventory using city staff or others to complete the inventory effort. This approach of completing the inventory in phases is being implemented due to budget limitations and to allow funding for future construction projects (see also section 4.3.4 and Figure 3). The inventory was conducted by measuring and verifying the status of features in the field and entering these results into a geodatabase set up for the project. The following items were inventoried within the initial inventory boundary:

- Curb ramps and sidewalks within 25 feet of curb ramps
- Crosswalks
- Push buttons

Once the inventory was completed, individual scores were calculated based on weighted criteria for the purpose of ranking the individual features. Score ranges were then set, and color coordinated to produce a graphical presentation. Appendix C summarizes the inventory and ranking process and includes critical setup information, scripts and settings utilized in ArcGIS for the items inventoried as part of the 2020/2021 exterior asset inventory.

Once the inventory was completed with the inventoried data entered into the geodatabase, individual scores were calculated for the purpose ranking the individual features and assessing relative ADA compliance status. Appendix D contains the inventory and scoring results for facilities within the initial inventory boundary.

4.0 IMPLEMENTATION PLAN AND SCHEDULE

The City of Gillette is committed to eliminating accessibility barriers for individuals with disabilities within its programs and rights-of-way. As required under 28 CFR 35.150(d)(3), the City of Gillette must specify a schedule for taking necessary steps to achieve ADA compliance. An implementation plan and schedule provide a timeline for addressing deficiencies and eliminating physical barriers identified through inventory. The following sections highlight some of the key implementation steps and methods the City of Gillette uses to address external ADA deficiencies of City-owned facilities. Appendix E contains the ADA Transition Plan summary and maintenance documents referenced in this section.

4.1 Funding

The City of Gillette strives to address ADA improvements though routine reconstruction projects funded through various federal, state, and local funding programs. The City of Gillette continually evaluates funding in targeting ADA barriers and is committed to attempt to budget work thought its CIP process to upgrade facilities and eliminate accessibility barriers. When other infrastructure work takes place adjacent to ADA facilities that is determined to no longer meet ADA standards, as part of the adjacent work being planned, review of the compliance and budgetary ability to perform upgrades will be a part of the review, taking into account the type of work and ability to pay for such work. The budgetary process will take place during each year's budget process setting the amounts available for ADA Improvements.

4.2 Schedule

Given the number of exterior deficiencies, the associated cost for improvements, and funding limitations, full compliance is anticipated to be achieved over a series of years. For each year of implementation, the City of Gillette will develop a plan outlining specific actions to be completed during the year as part of the city-wide capital improvements plan (CIP).

Periodically, the City of Gillette will complete an update report (contained in Appendix E) summarizing completed ADA improvement projects. The report enables the City to track progress in removing accessibility barriers and achieving ADA compliance.

4.3 Implementation Strategies

The following sections identify strategies the City of Gillette uses to implement the transition plan and to develop projects to address ADA deficiencies. Strategies are identified for project identification, design and construction, and operation and maintenance.

4.3.1 Project Identification and Prioritization

The City of Gillette prioritizes ADA improvement projects based on consideration of a range of factors including degree of noncompliance, number of noncompliant features, safety, demand, and public feedback. The number of noncompliant features and the degree of compliance (indicating the severity of the accessibility barrier) influence project prioritization. The City of Gillette also considers public input and maintains a documented response process for comments regarding ADA. A location with common complaints or safety issues may provide further justification for an ADA improvement project.

In addition to degree of non-compliance, the City of Gillette also considers relative demand when prioritizing curb ramp or other ADA related improvements. Certain areas of Gillette experience a higher level of pedestrian traffic (demand) and as such should be prioritized with the ADA transition plan. Designation of ADA priority areas will help guide decisions for both

future inventory areas and future construction/rehabilitation projects. These priority areas are areas of higher use and/or key areas used by the public. For example, City Hall and the County Building are both located in the downtown core area indicating these facilities have higher potential for use by the public. Priority areas shown in Figure 2 which developed for the Gillette ADA transition plan include:

- Downtown & Core Commercial
- Schools & Institutions
- Recreation
- Key buildings with regular public access/use

The City of Gillette identifies the appropriate level of ADA involvement depending on project classification, including new construction, reconstruction, rehabilitation, resurfacing, and preventative maintenance projects. For new construction and reconstruction projects, pedestrian facilities are designed and constructed to meet all relevant ADA requirements. In the case of resurfacing and rehabilitation projects involving alterations to existing infrastructure, existing pedestrian facilities are upgraded to meet ADA requirements to the extent technically feasible.

The City of Gillette communicates with other local entities to discuss upcoming projects. This communication helps the City to identify and plan its ADA improvements to coordinate with other local efforts. In some cases, opportunities for coordinating project phasing may benefit the City of Gillette and local entities by incorporating ADA elements into larger projects and avoiding costly re-work at a future date.

4.3.2 Design and Construction

ADA improvements are designed and reviewed by professional engineers trained in ADA design, construction, and retrofit complexities. The City of Gillette strives to allow for construction flexibility in the design of ADA features. Designing a pedestrian feature at the threshold of ADA requirements can cause difficulty in the field during construction. Without room for error or field fitment, the feature may inadvertently be constructed in exceedance of ADA thresholds, resulting in noncompliance. For example, a ramp cross slope designed to meet the 2% recommended maximum may be constructed at a slope of 2.1% due to a variety of unforeseen field conditions or construction methods. The ADA Coordinator assures designs adhere to applicable ADA regulations, policies, and design standards and facilitates the proper reviews and coordination.

Proposed ADA Priority Areas

Gillette ADA Transition Plan

Date: November 24, 2021

Figure 2

DOWL

Legend

- City Facilities
- Government Facilities
- Study Area
- Schools & Institutions
- Recreation
- Downtown & Core Commercial
- City Limits

N

0 1,200 2,400

Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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In some situations involving improvements to existing infrastructure, it is infeasible to comply with ADA requirements within the scope limitations of the project. For example, steep existing grades, historic features, storm drainage, limited right-of-way, and obstacles such as utility poles may impede the ability to meet ADA requirements at a particular location. The City of Gillette applies a process for technical infeasibility to determine and record these conditions on projects. A form has been developed to document technical infeasibility status of specific features and is included as part of the plan maintenance documents in Appendix E. In all cases, the City of Gillette designs and constructs ADA features in compliance with ADA requirements to the maximum extent feasible. The City of Gillette or its designees monitor the installation of ADA features during construction and field personnel measure new features to determine conformance with the design plans. The City of Gillette will periodically update reconstructed features in the geodatabase of external ADA features.

ADA implementing regulations (28 CFR 35.133(b)) allow for isolated temporary interruptions in service or access due to maintenance or repairs. During construction activities, the City of Gillette strives to maintain accessibility in a manner comparable to conditions prior to construction, to the extent feasible.

4.3.3 Operation and Maintenance

Operations and maintenance of ADA facilities generally refers to removal of obstructions (mostly snow removal, limited street sweeping) as well as maintenance and repairs. The City of Gillette has overall responsibility for physical maintenance of city rights-of-way including sidewalks, curb ramps, traffic signals and other exterior features, but in many cases the responsibilities lie with adjacent property owners.

City codes pertaining to operations and maintenance can be found in Chapter 18 of the current city of Gillette Code. Generally, the sidewalks and ramps are the responsibility of the adjacent property owners. The City has is some cases entered into agreements, by platting or other documentation, where the City is partially or fully responsible for maintenance or where the City performs this function for the benefit of the City as a whole. In these cases, a list of work and responsibilities are maintained by the designated departments of the City and a priority system is setup to determine when certain functions are to be accomplished. The ADA transition plan will help in determining the priority of ramps and sidewalks to this end.

4.3.4 Future Inventory Areas

The City intends to continue development of this ADA transition plan with future inventories of other areas of the City and additional facilities such as parking lots and buildings. Gillette city limits were divided into 10 future inventory areas as shown in Figure 3.

Proposed Future Study Areas

Gillette ADA Transition Plan

Date: November 24, 2021

Figure 3

DOWL

J

I

G

H

A

F

E

B

C

D

Legend

- Study Area
- Proposed Study Areas
- City Limits

N

0 2,000 4,000

Feet

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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5.0 PUBLIC AND STAKEHOLDER OUTREACH

Public and stakeholder input is an important part of the transition plan development and self-evaluation processes. ADA implementing regulations require public entities to provide an opportunity to interested persons, including individuals with disabilities or organizations representing individuals with disabilities, to participate in the self-evaluation process and development of the transition plan by submitting comments (28 CFR 35.105(b) and 28 CFR 35.150(d)(1)).

5.1 Comment Collection Platform

Public input was collected using an online platform that offered information about the plan, the anticipated document development schedule, and opportunities to be involved by providing comment or contacting the project team.

Figure 4: Screenshot of project website

Engagement features of the website included an interactive map and a forum. The interactive map allowed for the collection of geographically-targeted comments while the forum allowed for general comments, questions, and associated discussion.

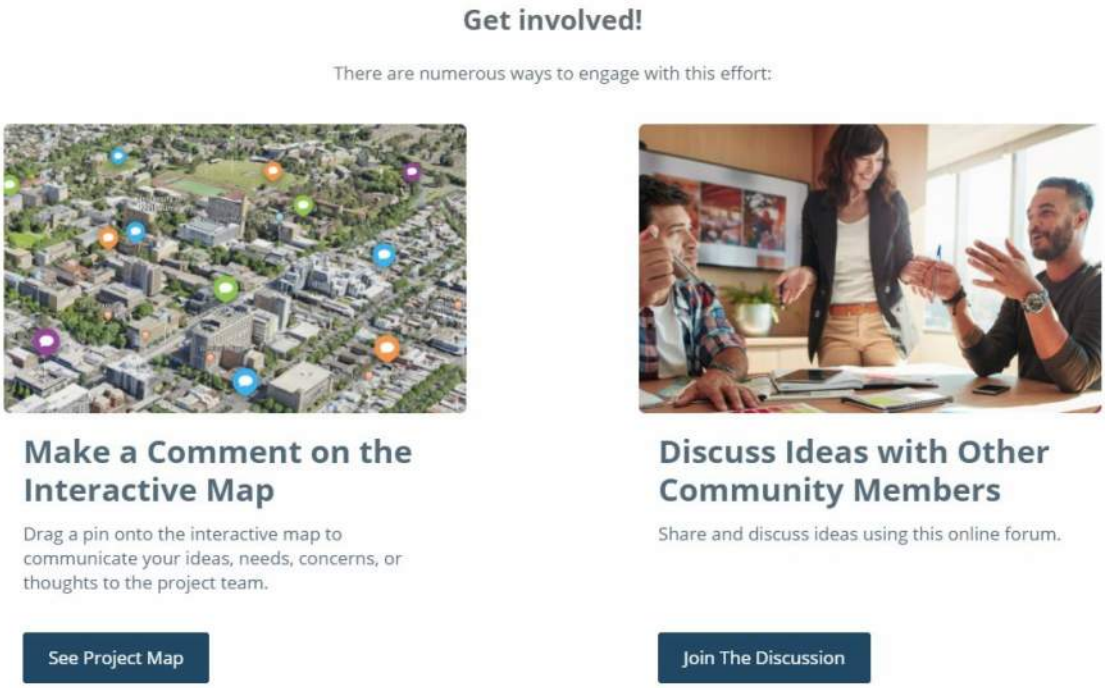


Figure 5: Engagement features on website

Comments collected on the interactive map:

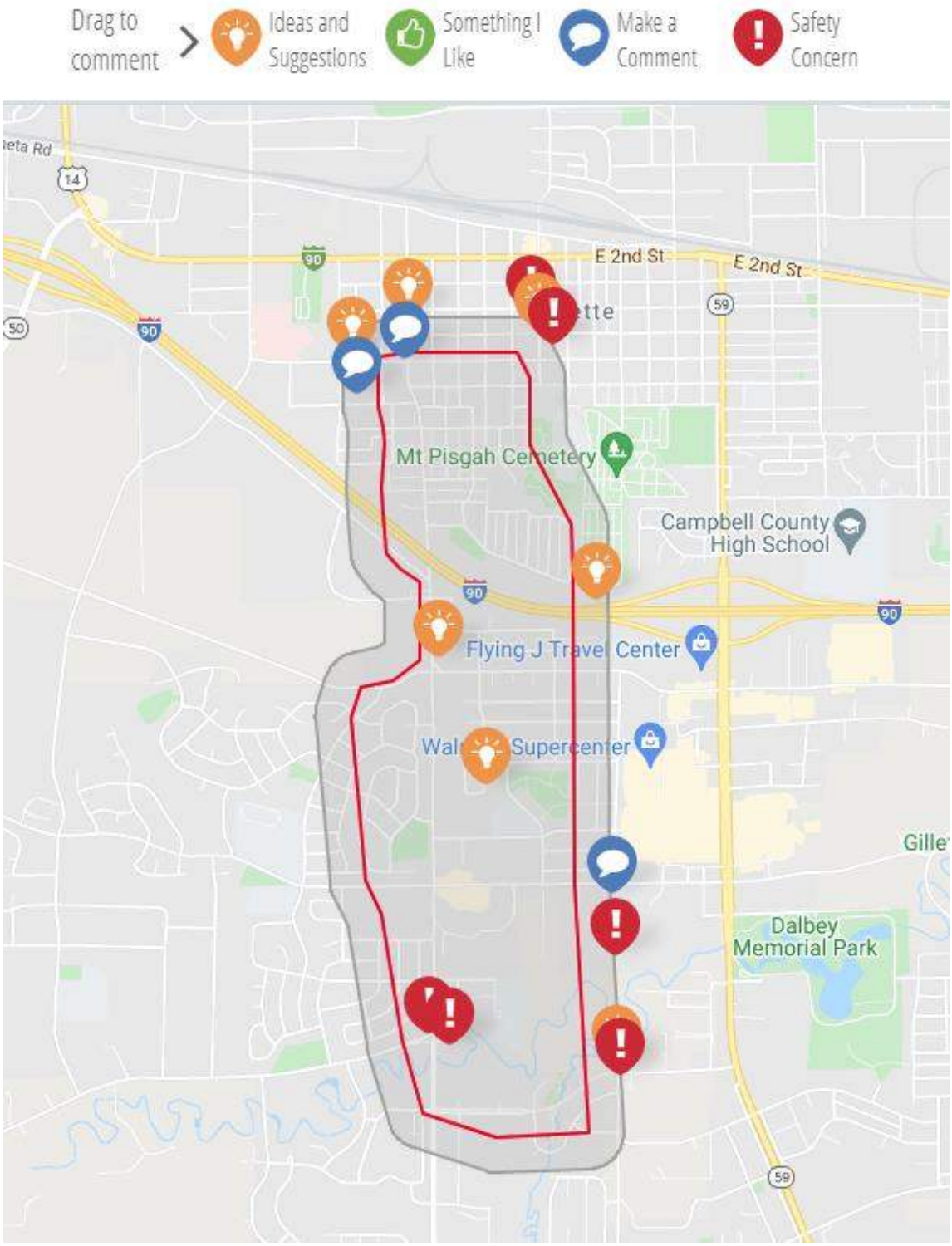


Figure 6: Comments noted on interactive map

Table 2: Map Comments

Comment Theme	Comment
Ideas and Suggestions	There is a large population of senior living in this neighborhood with a great need for ADA facilities.
Ideas and Suggestions	City should partner with County Senior Center, schools, and Campbell County Health to pool cost with transportation-related services.
Ideas and Suggestions	intersection of Sinclair and hwy 59. This could use an APS light at this intersection.
Ideas and Suggestions	*add an APS light at 4j and 14-16. * add APS light on 6th and 4J. * Add a sidewalk from 6th street south on 4j. * Public restroom for those traveling town on foot. maybe by children's center. * 1st street - needs a sidewalk all the way.
Ideas and Suggestions	Snow removal- please consider doing windrows in the center of the street rather than piling on sidewalks. 1. someone in a wheelchair or who is traveling with a can end up traveling in the street instead because of snow being moved to sidewalks. 2. homeowners are responsible for the sidewalks outside of their home. It doesn't help when shoveled sidewalks get snow moved from the street back to the sidewalks.
Ideas and Suggestions	A free right turn with no protection exists here. How can we make it safer for the pedestrians and pathway users?
Ideas and Suggestions	Shouldn't there be a ramp at the start of the entrance to the park?
Make a Comment	Interest in the 4J/6th Street intersection. Also, representing the senior citizen population.
Make a Comment	intersection of Lakeway and hwy 59, could benefit from an APS light.
Make a Comment	This is a very steep decline going West. I have stopped with my car to get out and help a person who fell with their electric three-wheeled mobility device because it tipped and she was lying in the street.
Safety Concern	The right turn from South 4j to west 4J has a safety concern noted by a man who is blind and cane instructor, that he is not able to cross this intersection safely.
Safety Concern	The button is difficult to locate and the detectable warning device orientation directs visually impaired individuals into the intersection. Sidewalk plowing would also help accessibility.
Safety Concern	Hwy 14-16 has poor crossing options, the traffic patterns are confusing, the technology is old and hard to hear. The orientation of a button on an island is hard to access and confusing.
Safety Concern	Highway 59 has poor accessibility. There are many businesses that people need to access.
Safety Concern	*Brooks & 4th - tree overhanging sidewalk - safety issue for visually impaired sidewalk traveler. * 2nd & Brooks - APS has sound going one N&S, but not E& W. was told city owns one and the the state the other direction. * Better access to Del Mar Apts located on Lincoln and Bundy. no sidewalk. poor access for cane or wheelchair user. *SNOW REMOVAL - city wide - move to center of street rather than sidewalk. If we don't drive, we end up walking in street because snow moved to sidewalks!!!!!

Comments collected on the public forum:

Table 3: Forum Comments

Comment
Where are some areas in Gillette that need improvement so they are more accessible for someone with a disability?
Code compliance goes around checking vehicle registration. Same ones can also check snow removal on sidewalks.
So with the possibility of more coal mine layoffs, down turns in oil and gas expansion plans all due to the ideocracy of "The Green New Deal" we are discussing spending money on projects that aren't really needed at this time? I understand if it's due to safety or to improve disabled access. But who's really gaining from this? Who's getting the kickbacks? What was promised? And to whom? Is this going to be shoved down our throats like everything else the city wants to do whether we want it or not?

5.2 Public Outreach

Outreach activities to discuss the plan and solicit input included:

- Open house
- Stakeholder meetings
- Stakeholder list development
- Direct mail and email
- City of Gillette NextDoor post
- Earned media: Press releases and media coordination
- Project hotline

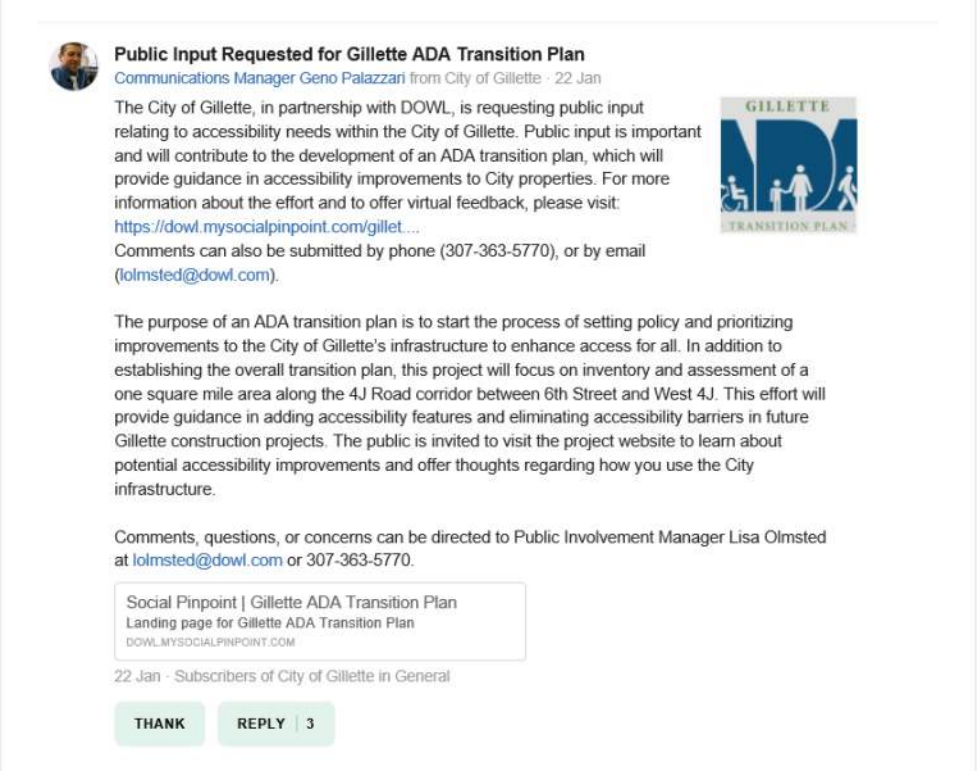


Figure 7: Screenshot of NextDoor Post

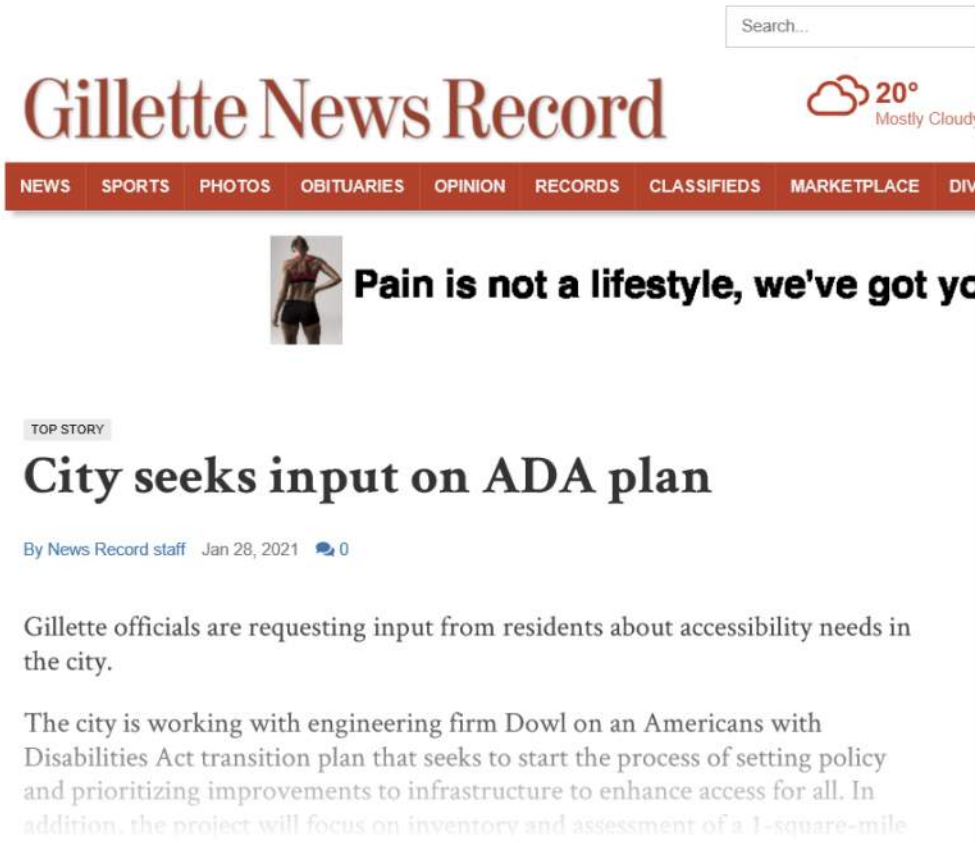


Figure 8: Screenshot of Gillette News Record Article

5.3 Plan Availability

The 2021 draft transition plan was made available for public review and comment from March 1, 2021 through April 16, 2021. A link to the draft document was provided on the Gillette ADA Transition Plan webpage and a press release was distributed notifying the public of its availability and inviting comment. Alternate accessible formats of the document were made available upon request. Public comments were received on the draft transition plan.

Appendix A

ADA Coordinator and Grievance Process

DOJ TITLE COMPLAINT FORM FOR DISCRIMINATION

Instructions: If you would like to submit a Title VI, Title II or Title III Complaint (you feel you have been discriminated against on the grounds cover by U.S. Department of Justice Title(s) within the City of Gillette,WY) to the City of Gillette, please complete the form below and return to: City of Gillette, ADA Coordinator, 205 E. Fifth Street, Gillette, WY 82716. For questions, please contact the ADA Coordinator through the City Clerk's office at (307) 686-5210. Please be sure to sign this form as we cannot accept your complaint without a signature. This document is available in accessible formats (e.g.,large print, electronic) upon request.

<table>
<tr><td colspan="2">Name (Complainant):</td></tr>
<tr><td>Phone: _____(home)
_____(cell)
_____(work)</td><td>Home Address (Street#, City, State, Zip Code):</td></tr>
<tr><td>Are you filling this Complaint on your own behalf:
Yes _____ No_____</td><td>If not, please supply the name and relationship of the person for whom you are complaining:</td></tr>
<tr><td colspan="2">Please explain why you have filed for a third party:</td></tr>
<tr><td colspan="2">Did you obtain permission of the aggrieved party on their behalf: Yes_____ No_____</td></tr>
<tr><td>If applicable, the name of the person(s) who you believe discriminated against you:</td><td>Date, Time and Location of the incident:</td></tr>
<tr><td colspan="2">Discrimination based on (please check all that apply):
Race_____ Color____ National Origin____ Physical/Mental Disablity____ Other_____</td></tr>
<tr><td colspan="2">Briefly explain what happened and how you feel you were discriminated against. Please include how you feel that others were teated differently than you. (Please attach additional page(s) if necessary)</td></tr>
<tr><td colspan="2">Why do you believe these events occurred:</td></tr>
</table>

Is there any other information that you feel may be relevant to this investigation:
How can these issues be resolved to your satisfaction:
Please list any person(s) who we can contact for additional information or to support/clarify your complaint:
If yes, please list agency/agencies and contact information below (please back of form if additional space is needed). Agency:
Address:
Contact Person:
Phone:
Signature (Complainant): Date of Filing:

Appendix B

Exterior Inventory Compliance Standards

Exterior Inventory Compliance Standards

Feature Type	Feature Element	Compliance Requirements
Curb Ramps	Ramp Layout	Perpendicular, Parallel, Blended
	Flush With Surface	Yes
	Ramp Slope	8.3% Maximum
	Ramp Cross Slope	2% Maximum
	Ramp Width	48” Minimum
	Landing Length	48” Minimum
	Landing Width	48” Minimum
	Landing Slope	2% Maximum
	Landing Cross Slope	2% Maximum
	Flare Slope Right	10% Maximum
	Flare Slope Left	10% Maximum
	Gutter Slope	5% Maximum
	Detectable Warning Device	Yes
	DWD Condition	Good
	DWD Color Contrast	Yes
	Vertical Surface Discontinuities (Trip Hazards)	½” Maximum
	Push Button Clear Space Length	48” Minimum
	Push Button Clear Space Width	30” Minimum
	Push Button Height	48” Maximum
	Push Button Clear Space Max Slope	2% Maximum all directions

Feature Type	Feature Element	Compliance Requirements
Crosswalks	Slope	5% Maximum
	Cross Slope	2% Maximum (crossings with stop or yield control) 5% Maximum (crossings without stop or yield control)
	Width	72” Minimum
	Material	Thermoplastic (with breaks to indicate direction of travel for blind)

Exterior Inventory Compliance Standards

<table>
<tr><th>Feature Type</th><th>Feature Element</th><th>Compliance Requirements</th></tr>
<tr><td rowspan="11">Accessible Parking Spaces</td><td>Minimum Number per Parking Facility</td><td>
<table>
<tr><th>Total Number of Parking Spaces Provided in Parking Facility</th><th>Minimum Number of Required Accessible Parking Spaces</th></tr>
<tr><td>1 to 25</td><td>1</td></tr>
<tr><td>26 to 50</td><td>2</td></tr>
<tr><td>51 to 75</td><td>3</td></tr>
<tr><td>76 to 100</td><td>4</td></tr>
<tr><td>101 to 150</td><td>5</td></tr>
<tr><td>151 to 200</td><td>6</td></tr>
<tr><td>201 to 300</td><td>7</td></tr>
<tr><td>301 to 400</td><td>8</td></tr>
<tr><td>401 to 500</td><td>9</td></tr>
<tr><td>501 to 1000</td><td>2 percent of total</td></tr>
<tr><td>1001 and over</td><td>20, plus 1 for each 100, or fraction thereof, over 100</td></tr>
<tr><td colspan="2">For every six or fraction of six parking spaces, at least one shall be a van parking space.</td></tr>
</table>
</td></tr>
<tr><td>Parking Sign with International Symbol of Accessibility</td><td>Yes except where four or fewer parking spaces, including accessible parking spaces, are provided.

Signs identifying van parking spaces shall contain the designation “van accessible”.</td></tr>
<tr><td>Sign Mounting Height</td><td>60” Minimum above the finish floor or ground surface measured to the bottom of the sign.</td></tr>
<tr><td>Vehicle Space Width</td><td>96” Minimum for a Car Parking Space

132” Minimum for a Van Parking Space

96” Minimum for a Van Parking Space w/ an Access Aisle >= 96”</td></tr>
<tr><td>Adjacent Access Aisle</td><td>Yes except for parallel on-street parking spaces where the adjacent sidewalk or available right-of-way is less than or equal to 14 feet (168”) wide.</td></tr>
<tr><td>Access Aisle Width</td><td>60” Minimum</td></tr>
<tr><td>Access Aisle Length</td><td>Shall extend the full length of the parking spaces they serve.</td></tr>
<tr><td>Access Aisle Markings</td><td>Yes</td></tr>
<tr><td>Access Aisle Location</td><td>Either side of the parking space except for angled van spaces which shall have access aisles on the passenger side of the parking space</td></tr>
<tr><td>Parking Space and Access Aisle Slopes and Cross Slopes</td><td>2% Maximum</td></tr>
</table>

Exterior Inventory Compliance Standards

Feature Type	Feature Element	Compliance Requirements
Pedestrian Access Routes	Continuous Clear Width	48” Minimum Where the clear width is less than 60”, passing spaces shall be provided at intervals of 200 feet maximum.
	Passing Space Dimensions	60” x 60” Minimum
	Slope if contained within a street right-of-way	Slope shall not exceed the general grade established for the adjacent street.
	Slope if not contained within a street right-of-way	5% Maximum
	Cross Slope	2% Maximum
	Vertical Surface Discontinuities (Trip Hazards)	½” Maximum

Exterior Inventory Compliance Standards

Feature Type	Feature Element	Compliance Requirements
Pedestrian Ramps	Ramp Slope	8.3% Maximum
	Ramp Cross Slope	2% Maximum
	Ramp Rise	30” Maximum
	Ramp Width	36” Minimum
	Top Landing Slope	2% Maximum
	Top Landing Cross Slope	2% Maximum
	Top Landing Width	60” Minimum
	Top Landing Length	60” Minimum
	Bottom Landing Slope	2% Maximum
	Bottom Landing Cross Slope	2% Maximum
	Bottom Landing Width	60” Minimum
	Bottom Landing Length	60” Minimum
	Does ramp contain 60” level pad every 30’?	“Yes”
	If rise is 6” or more is a handrail provided?	“Yes”
	Do Ramps 72” or longer have handrails on both sides?	“Both Sides”
	Continuous handrails?	“Yes”
	Handrails immobile in fittings?	“Yes”
	Distance handrails extend horizontally at top landing	12” Minimum
	Distance handrails extend horizontally at bottom landing	12” Minimum
	Continuous gripping surface?	“Yes”
	Height of top gripping surface?	34” Minimum - 38” Maximum
	Clearance between gripping and adjacent surface	1.5” Minimum
	Continuous gripping surface?	“Yes”
	Surface free from shard or abrasive elements	“Yes”
	Continuous gripping surface?	“Yes”
	Height of top gripping surface?	34” Minimum - 38” Maximum
	Clearance between gripping and adjacent surface	1.5” Minimum
	Continuous gripping surface?	“Yes”
	Surface free from shard or abrasive elements	“Yes”

Appendix C

GIS Data Summary

For this study, four feature classes were created to inventory curb ramps, push buttons, crosswalks, and adjacent sidewalks. Attribute tables within these feature classes were assembled to gather and organize pertinent data. In the office, points were created within the appropriate feature classes to increase efficiency in the field and provide some guidance to the inventory crew. The project was then pushed to ArcGIS Online which was brought in with Editor using a tablet or smart phone for the field inventory.

With the raw data in hand, eighteen of the thirty-eight total fields were chosen to be weighted and tallied as part of the final scores based on set ADAAG and PROWAG criteria for the curb ramps, push buttons, and crosswalks. The separate feature classes with independent scores allows the individual layers to be turned on or off narrowing the displayed results as well as separates the data making it more convenient for review. The field calculator application within ArcGIS was used to run Python scripts to calculate and populate the final score in the appropriate score columns for each feature class. Score ranges were than set and color coordinated within the Symbology Tab of the Layer Properties to produce a diagrammatic representation of the results.

To aid in the process of beginning an inventory in a new area, DOWL is including blank templates and files for your use. A list of included items may be found below.

- Blank geodatabase housing the feature classes that include blank attribute table templates used with this study
- Master ArcGIS mxd file with the blank geodatabase pre-loaded and range settings to graphically present the scored items
- Saved Python scripts that may be loaded into the field calculator to calculate and populate final scores
- Saved report outline to export the raw data in a pdf format

The GIS schema, scoring criteria, scripts, and symbology settings used for this study may be found in the following appendixes.

INDEX

Section 1 – GIS Schema

Curb Ramps

FIELD ALIAS	FIELD NAME	EXAMPLE	Description	Field Type	Domain
OBJECTID	OBJECTID	1	Default field populated by ArcMap	Object ID	
Shape	Shape	Point	Default field populated by ArcMap	Geometry	Point, Multipoint, Linestring, Multilinestring, Polygon, Multipolygon
Curb Ramp ID	CurbRampID	1	Unique identifier		
Ramp Layout	RampLayout	Other		Text	Parallel, Perpendicular, Blended, Undeveloped, Other
Ramp Slope (%)	RampS	5.7		Double	
Ramp Cross Slope (%)	RampCS	0.7		Double	
Ramp Width (inches)	RampW	45		Double	
Ramp Condition	RampCondition	Good		Text	New, Good, Worn/Damaged
Landing Length (inches)	LandingL	60		Double	
Landing Width (inches)	LandingW	60		Double	
Landing Slope (%)	LandingS	5.40		Double	
Landing Cross Slope (%)	LandingCS	0.10		Double	
Flare Slope Right (%)	FlareSR	7.80		Double	
Flare Slope Left (%)	FlareSL	4.10		Double	
Gutter Slope	GutterS	10.10		Double	
Detectible Warning Device	DWD	Yes		Text	Yes, No
DWD Condition	DWDC	New		Text	New, Good, Worn/Damaged
DWD Type	DWDT	Composite		Text	Composite, Cast Iron, Epoxy Coated Cast Iron, Concrete, Other
DWD Color Contrast	DWDCC	Yes		Text	Yes, No
Flush w/Surface	FWS	Yes		Text	Yes, No
Continuous Sidewalk	CSW	Yes		Text	Yes, No
Traffic Control	TC	Stop Sign 1 Way		Text	Stop Sign All Way, Stop Sign 2 Way, Signalized (APS), Yield Control, No Control
Trip Hazard	TripHaz	More than 0.5”		Text	More than 0.5”, 0.25” to 0.5”, Less than 0.25”, No Trip Hazard

Compliant	Compliant	No		Text	Yes, No
Score	Score	7.3	Calculated Score using a formula	Double	
Comments	Comments	New Curb Ramp 2020		Text	
QA	QA	OK	Quality assurance check	Text	OK, CHECK
Creation Date	CreationDate	11/4/2020	Metadata	Date	
Creator	Creator	dhomola_DOWL	Metadata	Text	
EditDate	EditDate	11/9/2020	Metadata	Date	
Editor	Editor	bstraetker_DOWL	Metadata	Text	

Push Buttons

FIELD ALIAS	FIELD NAME	EXAMPLE	Description	Field Type	Domain
OBJECTID	OBJECTID	1	Default field populated by ArcMap		
Shape	Shape	Point	Default field populated by ArcMap	Geometry	Point, Multipoint, Linestring, Multilinestring, Polygon, Multipolygon
Push Button ID	PushButtonID	1	Unique identifier		
Push Button Type	PBType	APS		String	No Button, Button, Bulldog, APS
Push Button Height Above Ground (inches)	PBH	48		Double	
Push Button Clear Space Length (inches)	PBCSL	52		Double	
Push Button Clear Space Width (inches)	PBCSW	36		Double	
Push Button Clear Space Max Slope (%)	PBCSMS	4.85		Double	
Compliant	Compliant	Yes		Text	Yes, No
Score	Score	3		Double	
Comment	Comment			Text	
QA	QA	OK	Quality assurance check	Text	OK, CHECK
Creation Date	CreationDate	11/4/2020	Metadata	Date	
Creator	Creator	dhomola_DOWL	Metadata	Text	
EditDate	EditDate	11/9/2020	Metadata	Date	
Editor	Editor	bstraetker_DOWL	Metadata	Text	

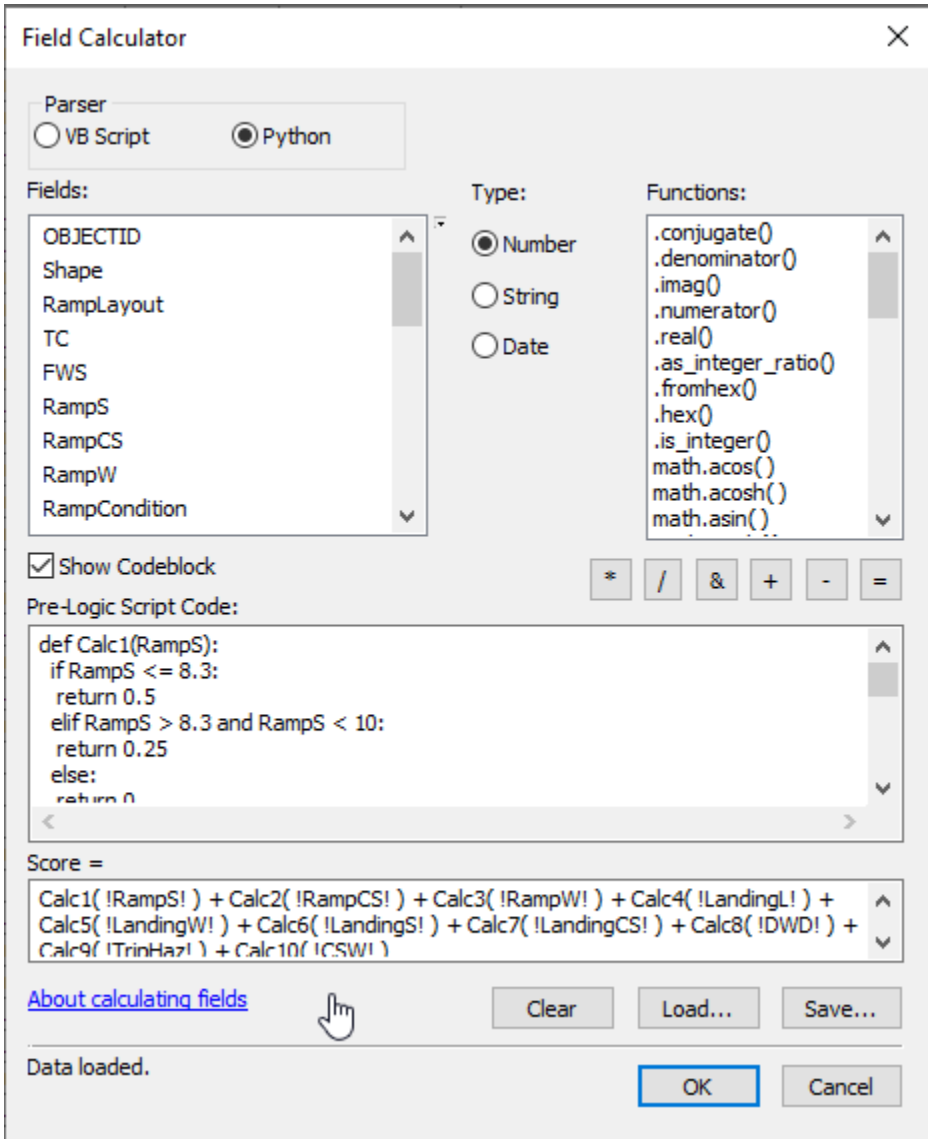
Crosswalks

FIELD ALIAS	FIELD NAME	EXAMPLE	Description	Field Type	Domain
OBJECTID	OBJECTID	1	Default field	OBJECTID	
SHAPE	SHAPE	Linestring	Default field	Geometry	Point, Multipoint, Linestring, Multilinestring, Polygon, Multipolygon
Crosswalk ID	CrosswalkID	13001	Unique Identifier		
SHAPE_Length	SHAPE_Length	36		Double	
Running Slope (%)	RSlope	2		Double	
Cross Slope (%)	CSlope	2		Double	
Width (inches)	Width	60.0	72” Minimum	Double	
Pavement Marking	PMarking	Yes		Text	Painted, Not Painted, Thermoplastic
Stop Bars	StopBars	Painted		Text	Painted, Not Painted, Thermoplastic
Direction Markers	DMarkers	Not Present		Text	Not Present, Single Gap East/West, Double Gap North/South
Compliant	Compliant	Yes		Text	Yes/No
Score	Score	5		Double	
Comments	Comments			Text	
QA	QA	OK	Quality assurance check	Text	OK, CHECK
Creation Date	CreationDate	11/4/2020	Metadata	Date	
Creator	Creator	dhomola_DOWL	Metadata	Text	
EditDate	EditDate	11/9/2020	Metadata	Date	
Editor	Editor	bstraetker_DOWL	Metadata	Text	

Sidewalk Points

FIELD ALIAS	FIELD NAME	EXAMPLE	Description	Field Type	Domain
OBJECTID	OBJECTID	1	Default field populated by ArcMap	Object ID	
Shape	Shape	Point	Default field populated by ArcMap	Geometry	Point, Multipoint, Linestring, Multilinestring, Polygon, Multipolygon
Width (inches)	RampW	45		Double	
Slope (%)	RampS	5.7		Double	
Cross Slope (%)	RampCS	0.7		Double	
Trip Hazard	TripHaz	.5' or greater		Text	More than 0.5", 0.25" – 0.5", Less than 0.25", No Trip Hazard
Score	Score	7.3	Calculated Score using a formula	Double	
Compliant	Compliant	No		Text	Yes, No
Comments	Comments	New Curb Ramp 2020		Text	
QA	QA	OK	Quality assurance check	Text	OK, CHECK
Creation Date	CreationDate	11/4/2020	Metadata	Date	
Creator	Creator	dhomola_DOWL	Metadata	Text	
EditDate	EditDate	11/9/2020	Metadata	Date	
Editor	Editor	bstraetker_DOWL	Metadata	Text	

Section 2 – Python Scripts



1. Right Click on the Score heading field and choose field calculator
2. Click Load…
3. Navigate to the file location of the saved script and open
4. Make sure that Python within the Parser box is chosen and click OK
5. The score will be calculated and populated within the score column

Curb Ramps Final Score Python Script

Pre-Logic Script Code:

```
def Calc1(RampS):
  if RampS >= 0 and RampS <= 8.3:
   return 1.0
  elif RampS > 8.3 and RampS < 10:
   return 0.25
  else:
   return 0

def Calc2(RampCS):
  if RampCS >= 0 and RampCS <= 2:
   return 0.75
  if RampCS > 2 and RampCS < 3:
   return 0.25
  else:
   return 0

def Calc3(RampW):
  if RampW >= 48:
   return 0.75
  if RampW > 44 and RampW < 48:
   return 0.25
  else:
   return 0

def Calc4(LandingL):
  if LandingL >= 48:
   return 1.0
  if LandingL > 44 and LandingL < 48:
   return 0.25
  else:
   return 0

def Calc5(LandingW):
  if LandingW >= 48:
   return 1.0
  if LandingW >44 and LandingW < 48:
   return 0.25
  else:
   return 0

def Calc6(LandingS):
  if LandingS >= 0 and LandingS <= 2:
   return 1.0
  if LandingS > 2 and LandingS < 3:
   return 0.25
  else:
   return 0

def Calc7(LandingCS):
  if LandingCS >= 0 and LandingCS <= 2:
   return 1.0
  if LandingCS > 2 and LandingCS < 3:
   return 0.25
  else:
   return 0

def Calc8(DWD):
```

```
 if DWD == 'Yes':
  return 1.0
 else:
  return 0

def Calc9(DWDC):
 if DWDC == 'New':
  return 0.5
 if DWDC == 'Good':
  return 0.5
 else:
  return 0

def Calc10(DWDCC):
 if DWDCC == 'Yes':
  return 0.5
 else:
  return 0

def Calc11(TripHaz):
 if TripHaz =='More than 0.5"':
  return 0
 if TripHaz == None:
  return 0
 else:
  return 0.75

def Calc12(CSW):
 if (CSW=='Yes'):
  return 0.75
 else:
  return 0
```

Score =

```
Calc1(!RampS!)+Calc2(!RampCS!)+Calc3(!RampW!)+Calc4(!LandingL!)+Calc5(!LandingW!)+Calc6(!LandingS!)+Calc7(!LandingCS!)+Calc8(!DWD!)+
Calc9(!DWDC!)+Calc10(!DWDCC!)+Calc11(!TripHaz!)+Calc12(!CSW!)
```

Push Buttons Final Score Python Script

Pre-Logic Script Code:

```
def Calc1(PBType):
  if PBType == 'APS':
   return 2
  else:
   return 0

def Calc2(PBH):
  if PBH <= 48:
   return 1
  elif PBH > 48 and PBH <= 49:
   return 0.5
  else:
   return 0

def Calc3(PBCSL):
  if PBCSL >= 48:
   return 0.5
  else:
   return 0

def Calc4(PBCSW):
  if PBCSW >= 30:
   return 0.5
  else:
   return 0

def Calc5(PBCSMS):
  if PBCSMS <= 2:
   return 1
  elif PBCSMS > 2 and PBCSMS < 3:
   return 0.5
  else:
   return 0
```

Score =

```
Calc1(!PBType!) + Calc2(!PBH!) + Calc3(!PBCSL!) + Calc4(!PBCSW!) + Calc5(!PBCSMS!)
```

Crosswalks Final Score Python Script

Pre-Logic Script Code:

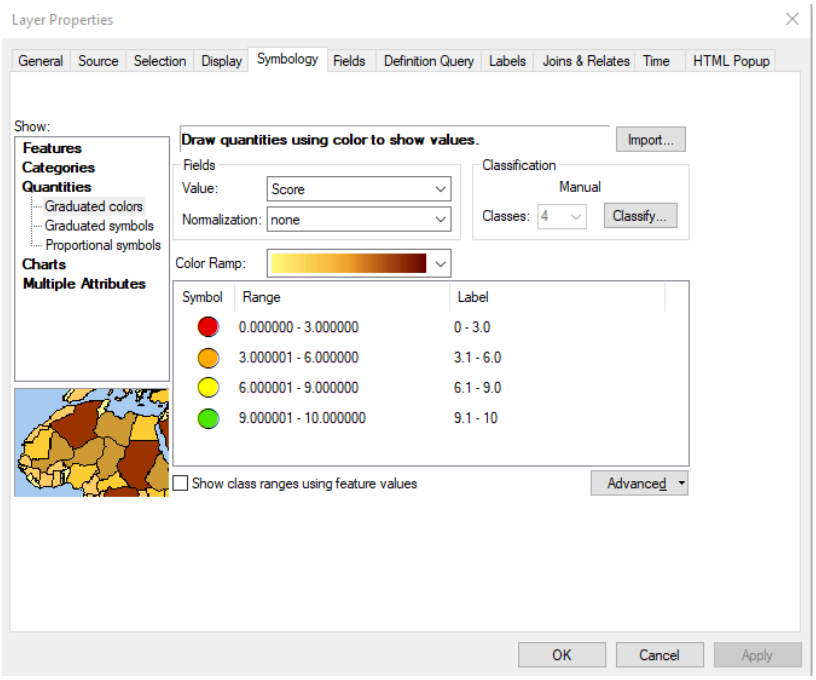
```
def Calc1(PMarking):
  if PMarking == 'Painted':
   return 2
  if PMarking == 'Thermoplastic':
   return 2
  else:
   return 0

def Calc2(RSlope):
  if RSlope <=5:
   return 1
  elif RSlope >5 and RSlope <6:
   return 0.5
  else:
   return 0

def Calc3(CSlope):
  if CSlope <= 2:
   return 1
  elif CSlope >2 and CSlope <3:
   return 0.5
  else:
   return 0

def Calc4(Width):
  if Width >= 72:
   return 1
  elif Width >70 and Width <72:
   return 0.5
  else:
   return 0
```

Score =

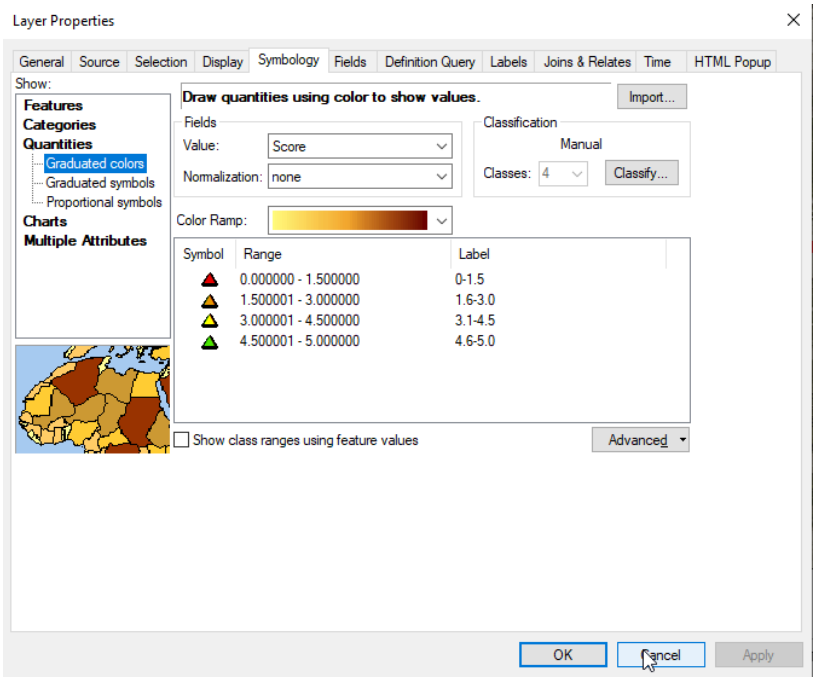
```
Calc1(!PMarking!) + Calc2(!RSlope!) + Calc3(!CSlope!) + Calc4(!Width!)
```

Section 3 – Symbology Range Settings

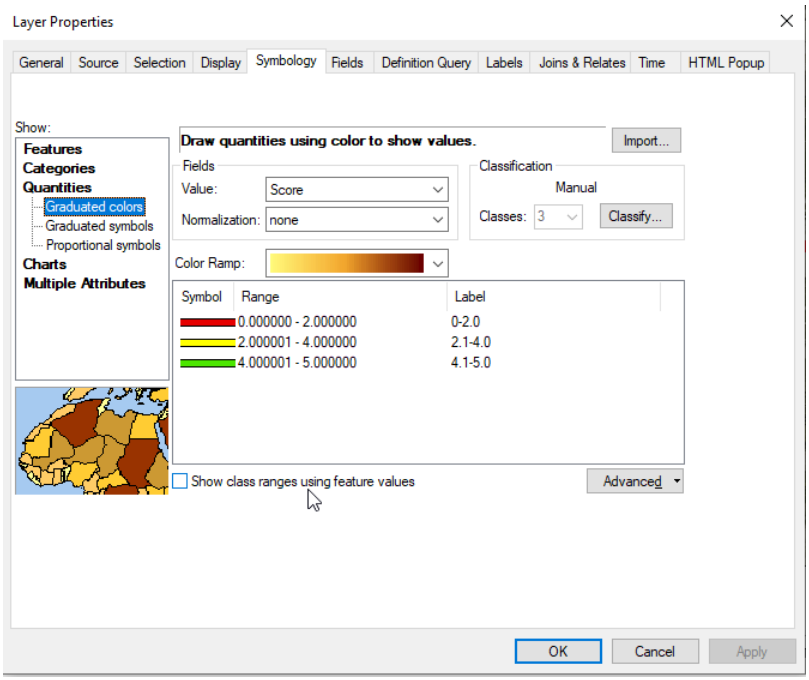
Curb Ramps



Push Buttons



Crosswalks


Layer Properties
General
Source
Selection
Display
Symbology
Fields
Definition Query
Labels
Joins & Relates
Time
HTML Popup
Show:
Features
Categories
Quantities
Graduated colors
Graduated symbols
Proportional symbols
Charts
Multiple Attributes
Draw quantities using color to show values.
Import...
Fields
Value:
Score
Normalization:
none
Classification
Manual
Classes:
3
Classify...
Color Ramp:
Symbol
Range
Label
0.000000 - 2.000000
0-2.0
2.000001 - 4.000000
2.1-4.0
4.000001 - 5.000000
4.1-5.0
Show class ranges using feature values
Advanced
OK
Cancel
Apply

Appendix D

Inventory Results

Once the field inventory was completed, scores were calculated to assess the ADA compliance status. A scoring matrix and color-coding symbology was developed for each of the three inventory items. Detailed scoring and a summary for the three primary features are describe in this appendix. Figures D1 through D4 show the inventory and scores.

1.1 Curb Ramps

A curb ramp is a ramp that provides an accessible transition between a roadway and a sidewalk or along other pedestrian routes such as a transition from a sidewalk to a parking lot. To comply with the ADA, the City of Gillette must provide curb ramps at every pedestrian crossing where the sidewalk intersects a curb. PROWAG guidelines specify recommendations for curb ramp width, slope, cross slope, and placement and for associated elements such as the landing, flares, gutter, detectible warning device, and pedestrian signal actuator button if the intersection is signalized.

A scoring matrix was developed for the curb ramps utilizing ten key components which include the following:

- Ramp slope
- Ramp cross slope
- Ramp width
- Landing length
- Landing width
- Landing slope
- Landing cross slope
- Trip hazard
- Continuous sidewalk
- Detectable warning device

The scores for the induvial components are then weighted and summed for a maximum score of ten points. The final compliance score indicates a degree of non-compliance and assists with prioritization for improvements. A high score indicates a ramp with high compliance while a low score indicates a ramp that is less compliant. A ramp with a perfect score of ten does not indicate that it is 100% compliant with ADAAG and PROWAG guidelines. Table D1 includes the scoring matrix for the curb ramps.

Table D1. Curb Ramp Scoring Matrix

Item	Scoring Element	Requirement Tolerance	Scoring Criteria		
			Score		
1	Ramp Slope	<= 8.3%	<= 8.3%	> 8.3% and <10%	>=10%
			1	0.25	0
2	Ramp Cross Slope	<=2.0%	<= 2.0%	> 2% and < 3%	>= 3%
			0.75	0.25	0
3	Ramp Width	>= 48"	>= 48"	> 44" and < 48"	<= 44"
			0.75	0.25	0
4	Landing Length	>= 48"	>= 48"	> 44" and < 48"	<= 44"
			1	0.25	0
5	Landing Width	>= 48"	>= 48"	> 44" and < 48"	<= 44"
			1	0.25	0

6	Landing Slope	<= 2%	<= 2%	> 2% and < 3%	>=3%
			1	0.25	0
7	Landing Cross Slope	<= 2%	<= 2%	> 2% and < 3%	>= 3%
			1	0.25	0
8	Detectable Warning Device	Yes/No	Yes	No	Contrast
			1	0	0.5
9	DWD Condition	New or Good	New/Good	Worn/Damaged	
			0.5	0	
10	DWD Contrast	Yes/No	Yes	No	
			0.5	0	
11	Trip Hazards	<= 1/2"	<= 1/2"	>1/2"	
			0.75	0	
12	Continuous Sidewalk	Yes/No	Yes	No	
			0.75	0	

Once the scoring matrix was established individual curb ramp scores were developed. To simplify visually, individual scores were tallied and put into ranges with colors assigned to portray relative compliance. The ranges with associated color and resulting number of ramps are shown in Table D2.

Table D2. Curb Ramp Compliance Score Summary

Description	Color Code	Compliance Score Range	Number of Ramps
Excellent	Green	9.1 – 10	48
Good	Yellow	6.1 – 9.0	124
Fair	Orange	3.1 – 6.0	109
Poor	Red	0 – 3.0	145

Many curb ramps are non-compliant, and the degree of non-compliance varies among the ramps. Most of the ramps in the study area are relatively old and were installed prior to adoption of the ADA. Many of the older ramps have a perpendicular ramp layout without a landing no detectable warning device. There are other areas that contain newer curb ramps that meet all or most of the compliance measurements and criteria for curb ramps. For example, the ramps along Boxelder Road west of 4-J Road were reconstructed recently and meet most of the recommendations for slopes and widths and contain detectable warning devices. In many cases, the newer ramps were marked non-compliant due to one feature being out of compliance such as a worn or damaged detectable warning device.

Figures D1 through D4 depict the overall results of the 2020/2021 inventory. Ramps are shown as circles with color corresponding to the ranges listed in Table D2. There are currently 426 existing curb ramps on the Study Area. Of the existing ramps, 17 met 100% of the ADAAG and PROWAG criteria.

1.2 Push Buttons

A push button is a type of traffic signal which allows pedestrians to activate a roadway crossing. A push button can be stand-alone such as at a mid-block crosswalk or integrated with traffic signals at an intersection. While there are many different types of legacy push button systems installed, PROWAG maintains guidelines for push button-type devices and the current compliant system is called an Accessible Pedestrian Signal (APS). It is worth noting that even the standards for APS devices are being changed and updated, which makes compliance with these requirements a challenge. The City of Gillette will strive to comply with current push button device standards and prioritize equipment replacement periodically along with other accessibility assets.

A scoring matrix was developed for the push button devices based on four components and weights were assigned to the individual components with a maximum score of five (5). The three components used for the compliance scores include the following:

- Device type
- Height
- Clear space
- Clear space maximum slope

If the element is compliant, a score of one was given for that element. If an element is non-compliant, that element either received a score of zero or 0.5. For example, a push button device with a slope of 2.5 percent received an element score of 0.5. If all three elements are compliant, the push button ramp received a score of 3. A higher score indicates a higher degree of compliance while a lower score indicates a lower degree of compliance. Table D3 is the scoring matrix for push button.

Table D3. Push Button Scoring Matrix

Item	Scoring Element	Requirement Tolerance	Scoring Criteria		
			Score		
1	Type	APS	Yes	No	
			2	0	
2	Height	<= 48"	<= 48"	>48" and < 49"	>= 49"
			1	0.5	0
3	Clear Space (L x W)	>= 48" x 30"	Both	One	None
			1	0.5	0
4	Clear Space Max Slope	<= 2%	<= 2%	>2 % and <3 %	>=3%
			1	0.5	0

Once a scoring matrix was developed, relevant information contained in the geodatabase was processed in the geodatabase and individual push button scores were developed. To simplify visual scores were put into ranges with colors assigned to portray relative compliance. Table D4 shows the score ranges, color codes and numbers of APS devices falling into each range.

Table D4. Push Button Compliance Score Summary

Description	Color Code	Compliance Score Range	Number of Push Button Devices
Excellent	Green	4.6 – 5.0	0
Good	Yellow	3.1 – 4.5	2
Fair	Orange	1.6 – 3.0	33
Poor	Red	0 – 1.5	11

A majority of the push button locations score with relatively low compliance mostly due to the buttons not meeting the current PROWAG requirements of an Accessible Pedestrian Signal (APS). In addition, many locations where push buttons are installed do not provide an adequate landing that completely extends to the button. Figures D1 through D4 depict the overall results of the 2020/2021 inventory. Push button devices are shown as triangles with color corresponding to the ranges listed in Table D4. There are currently 46 push button devices within the initial inventory boundary.

1.3 Crosswalks

A crosswalk is the portion of the roadway designated for pedestrians to use in crossing the street. PROWAG guidelines specify recommendations for crosswalk slope, cross slope, and width. A crosswalk may be identified with appropriate pavement markings such as two horizontal lines, a ladder design, or diagonal markings. The Manual of Uniform Traffic Control Devices (MUTCD) specifies guidelines for when crosswalks should be marked in addition to standards for markings. For the purposes of inventory, a crosswalk was assumed to be present when the walkway was identified with pavement markings.

A scoring matrix was developed for the crosswalks based on four components of the crosswalk and weights were assigned to the individual components with a maximum score of five. The identified components included the following:

- Pavement markings
- Running slope
- Cross slope
- Width

The scores for the induvial components are then weighted and summed for a maximum score of 5 points. The final compliance score indicates a degree of non-compliance and assists with prioritization for improvements. A high score indicates a crosswalk with high compliance while a low score indicates a crosswalk that is less compliant. If all four elements are compliant, the crosswalk received a score of five. A higher score indicates a higher degree of compliance while a lower score indicates a lower degree of compliance. Table D5 includes the scoring matrix for the crosswalks.

Table D5. Crosswalk Scoring Matrix

Item	Scoring Element	Requirement Tolerance	Scoring Criteria		
			Score		
1	Markings	Present	Yes	No	
			2	0	
2	Running Slope	<= 5%	<= 5%	>5 % and < 6%	>= 6%
			1	0.5	0
3	Cross Slope	<= 2%	<= 2%	> 2% and < 3%	>=3%
			1	0.5	0
4	Width	>= 72"	>= 72"	< 72" and > 70"	<= 70"
			1	0.5	0

Once the scoring matrix was established, relevant information contained in the geodatabase was processed in the geodatabase and individual crosswalk scores were developed. To simplify visually, individual scores were tallied and put into ranges with colors assigned to portray relative compliance. Table D6 shows the score ranges, color codes and numbers of crosswalks falling into each range.

Table D6. Crosswalk Compliance Score Summary

Description	Color Code	Compliance Score Range	Number of Crosswalks
Good	Green	4.1 – 5.0	29
Fair	Yellow	2.1 – 4.0	6
Poor	Red	0 – 2.0	1

Many crosswalks received scores showing a high level of compliance. Deductions were made mostly due to worn/damaged markings and non-compliant cross-slopes which are difficult to achieve due to grades set by the running slope of the street. Figures D1 through D4 depict the overall results of the 2020/2021 inventory. Crosswalks are shown as lines with color corresponding to the ranges listed in Table D4.

1.4 Sidewalks

Sidewalks provide circulation paths for pedestrians and are an important component of pedestrian access routes. Sidewalks should be at least four feet wide per PROWAG; however, generally accepted design guidelines recommend sidewalks be at least five feet wide, especially in urban areas. If sidewalks are less than five feet wide, a passing space should be provided at least every 200 feet. Slope recommendations include a maximum running slope of five percent and a maximum cross slope of two percent. For sidewalk located adjacent to roadways, the running slope can exceed five percent if the slope does not exceed the general grade established by the street. Vertical surface discontinuities are not allowed to be greater than one-half inch.

The City of Gillette's design standard is 4' wide sidewalks on residential streets and 5' wide sidewalks (minimum) on all other locations. Most of the City's street network was designed on a 400' to 600' grid spacing and driveways are spaced within 200' or less, which allows for passing

spaces. Evaluation of sidewalk width and passing space will be evaluated by City Staff in the future.

Sidewalks adjacent to curb ramps were inventoried as part of the 2020/2021 inventory effort. Width, slope, and tripping hazard information was recorded for 25' each direction from the curb ramps and is included in the geodatabase. The result of this inventory was a series of points adjacent to each curb ramp. Results of sidewalk assessments were not depicted on the summary figures for the purposes of clarity. Many of the sidewalks are four feet wide and do not have appropriate passing spaces and tripping hazards also exist in many locations.

ADA Scoring Results

Gillette ADA Transition Plan

Date: November 24, 2021

Figure D1

DOWL

Legend

Push Buttons

Score

- 0-1.5
- 1.6-3.0
- 3.1-4.5
- 4.6-5.0

CurbRamps

Score

- 0-3.0
- 3.1-6.0
- 6.1-9.0
- 9.1-10

Crosswalks

Score

- 0-2.0
- 2.1-4.0
- 4.1-5.0
- Study Area
- City Limits

N

0 160 320

Feet

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ADA Scoring Results

Gillette ADA Transition Plan

Date: November 24, 2021

Figure D2

DOWL

Legend

Push Buttons

Score

- 0-1.5
- 1.6-3.0
- 3.1-4.5
- 4.6-5.0

CurbRamps

Score

- 0-3.0
- 3.1-6.0
- 6.1-9.0
- 9.1-10

Crosswalks

Score

- 0-2.0
- 2.1-4.0
- 4.1-5.0
- Study Area
- City Limits

N

0 160 320

Feet

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ADA Scoring Results

Gillette ADA Transition Plan

Date: November 24, 2021

Figure D3

DOWL

Legend

Push Buttons

Score

- 0-1.5
- 1.6-3.0
- 3.1-4.5
- 4.6-5.0

CurbRamps

Score

- 0-3.0
- 3.1-6.0
- 6.1-9.0
- 9.1-10

Crosswalks

Score

- 0-2.0
- 2.1-4.0
- 4.1-5.0
- Study Area
- City Limits

N

0 160 320

Feet

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ADA Scoring Results

Gillette ADA Transition Plan

Date: November 24, 2021

Figure D4

DOWL

Legend

Push Buttons

Score

- 0-1.5
- 1.6-3.0
- 3.1-4.5
- 4.6-5.0

CurbRamps

Score

- 0-3.0
- 3.1-6.0
- 6.1-9.0
- 9.1-10

Crosswalks

Score

- 0-2.0
- 2.1-4.0
- 4.1-5.0
- Study Area
- City Limits

N

0 160 320

Feet

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Appendix E

ADA Transition Plan Maintenance Documents

Gap Analysis Matrix for Requirements under Title II and Section 504

Category		Requirement	Regulation Reference/Citation		Applicable City of Gillette Policy or Procedure	City of Gillette Compliant			Description of Gap or Deficiency	Suggestions for Improvement		
			Title II - ADA	Section 504		Yes	No	In Progress				
Administration	ADA Coordinator	Designate an ADA Coordinator	28 CFR 35.107(a)	49 CFR 27.13(a)	n/a			X	City Clerk	Provide a list of ADA/504 coordinator duties and make available to the public.		
	Public Notice	Provide Notice about the Rights of the Public under the ADA, ADA Contact(s) within the City, and Public Participation Opportunities	28 CFR 35.105(b) 28 CFR 35.106 28 CFR 35.107(a)	49 CFR 27.15	n/a			X	No notice	Develop ADA page for City website and place link on home page. Include notice of non-discrimmination.		
	Grievance Procedure	Establish Grievance Procedure(s)	28 CFR 35.107(b)	49 CFR 27.13(b) 49 CFR 27.121(b)	n/a			X	Adopt grievance procedure	Develop document to include ADA Title II. Add links on City website.		
	Transition Plan / Self-Evaluation	Establish a Transition Plan/Self-Evaluation Process	28 CFR 35.105 28 CFR 35.150(d)	49 CFR 27.11(c)(2)	n/a			X	City of Gillette has not yet developed a transition plan	City of Gillette has contracted with DOWL to develop a transition plan. Maintain the current internal work group during plan implementation to ensure collaboration between divisions. Allowed a period for the public to review the ADA Transition Plan and self-evaluation process.		
	Other											
Communications	Auxiliary Aids	Provide Auxiliary Aids Upon Request and Notify Public of their Availability	28 CFR 35.160(a) 28 CFR 35.160(b)(1)	49 CFR 27.7(c)	n/a		X			Provide a list of auxiliary aids and how to obtain the aids on City of Gillette's webpage.		Provide regular ADA training to employees whose job often deals with ADA (e.g. maintenance personnel, designers, inspectors, engineers). Offer higher levels of training for these employees. Provide basic ADA training to all employees. Ensure that employees who use or provide auxiliary aids obtain sufficient training and are able to use such aids proficiently.
	Information & Signage	Provide Necessary Signage	28 CFR 35.163	49 CFR 27.7(c)	n/a		X			Incorporate current web accessibility policy with ADA and grievance prodedure to ensure Gillette's website is accessible to all users. This policy would also detail how City of Gillette would provide access to the disabled community. Review and update signage as appropriate (e.g., parking lots, pedestrian crossings, publicly accessible buildings).		
	TTY	Offer Accessible Telephone Services	28 CFR 35.161	49 CFR 27.7(c)	n/a		X			Verify availability and include information on website.		
Facilities and Rights-of-Way	Design Standards and Construction Procedures	Install Accessible Features in all Newly Constructed or Altered Public Rights-of-Way and Facilities	28 CFR 35.150(b) 28 CFR 35.151(a)(1) 28 CFR 35.151(b)(1) 28 CFR 35.151(i)	49 CFR 27.75	Subdivision Regulations	X			No deficiency identified	Review PROWAG requirements and consider adoption of PROWAG or adding specific references to Gillette Standards.		
					2020 Design Standards	X						
					2020 Standard Specifications	X						
					Statement of Technical Infeasibility			X	No document	Adopt document and incorporate into CIP project scoping and design reviews.		
					Development services documents and checklists	X			No deficiency identified	Include reference to ADA requirements as part of review process between City of Gillette and the developer.		
	Inventories	Develop a Curb Ramp Inventory	28 CFR 35.150(d)(2)	49 CFR 27.11(c)(2)	n/a			X	Incomplete inventory	Update curb ramp inventory periodically.	Develop platform(s) for monitoring accessibility related data. Use database(s) to improve compliance efforts and monitor progress.	Coordinate with other agencies on data collection efforts if applicable.
		Develop Inventories for Other ADA Related Features within Public Rights-of-Way	28 CFR 35.105(a) 28 CFR 35.130(a) 28 CFR 35.150(a) 28 CFR 35.151(i)	49 CFR 27.11(c)(2)	n/a			X	Incomplete inventory	Conduct inventory on other pedestrian facilities contained within the right-of-way (e.g. sidewalks, accessible pedestrian signal [APS] systems, pedestrian underpasses & overpasses, etc.).		
		Develop Inventories for Facilities	28 CFR 35.150(d)(2)	49 CFR 27.11(c)(2)	n/a		X		Inventory not yet initiated	Future inventory will comply with Title II.		
	Address Barriers	Address Barriers at Existing Facilities	28 CFR 35.105(a) 28 CFR 35.130(a) 28 CFR 35.149 28 CFR 35.150(a)(b) 28 CFR 35.151(i)	49 CFR 27.11(c)(2)	n/a			X	City of Gillette has been removing existing barriers as part of reconstruction or rehabilitation projects	Develop a prioritization process and consider ADA elements when programming projects into the Capital Improvements Plan (CIP).		
Maintenance		Maintain ADA Facilities and Features in Operable Working Condition	28 CFR 35.133(a)		Maintenance agreements with other agencies	X			No deficiency identified	Review and update maintenance agreements to clarify who is responsible for maintaining accessible features.		
					Maintenance Manual		X		No maintenance manual	Develop manual to contain a procedure for providing and maintaining ADA compliance on altered and new pedestrian facilities. Review new legislation/regulations and update manual as needed.		

Implementation Plan and Schedule

Implementation Category	PROPOSED Action Items and Projected Date of Completion			
	Immediate (2022-2023)	**Short-Term (2024-2027)**	**Mid-Term (2028-2030)**	**Long-Term (2031 and Beyond)**
Address Deficiencies in City of Gillette ADA Policies and Procedures	**1. Transition Plan**			
	1a. Finalize ADA Transition Plan	1b. Continue ADA Transition Plan Updates		
	2. Administrative/Public Outreach			
	2a. Finalize language on notices and forms: -ADA/504 Notice of Non-Discrimination -ADA Grievance Procedure, Form, and Tracking System	2b. Further develop the ADA website to include: -ADA Coordinator Duties -Public Notice Documentation -Grievance Procedure -Transition Plan/Self Evaluation Updates and Progress -Information about Auxiliary Aids, etc.	2c. Continue to use the ADA website as a means to involve the public in the City's ADA program, self-evaluation, and barrier removal process	
	3. Design Standards and Construction Procedures			
	3a. Update construction and design guidance to reference PROWAG	3b. Further incorporate ADA into maintenance manuals 3c. Review maintenance agreements 3d. Develop a documented procedure for ADA compliance reviews during the design process and during and after construction	3e. Update design standards, maintenance, and construction procedures as necessary per regulatory standards	
	4. Stakeholder List			
	4a. Establish stakeholder list to include individuals from disabled community.	4b. Coordinate with stakeholders as needed with respect to ADA compliance and public involvement on ADA related decisions. Update stakeholder list as needed.		
	5. Other Policies			
	5a. Summarize and document right-of-way maintenance agreements	5b. Develop right-of-way maintenance manual for public works which includes accessibility features	5c. Develop/update policies as needed if deficiencies are found	
	6. ADA Training			
	6a. Develop a plan and schedule to provide ADA training to City employees based on their roles	6b. Implement ADA training schedule		
Augment Missing or Incomplete Inventory Data	**7. Database Development and Tracking System**			
	7a. Identify areas that are not required to be accessible and note in database 7b. Create an overall data maintenance strategy and specific data management work group 7c. Develop QA/QC processes for data once it has been input into the database 7d. Coordinate ADA database with CIP showing current and future projects. 7e. Refine and test database and reporting mechanisms	7f. Develop tracking system/field verification for ADA improvements at the time of construction to be fed back into the GIS database	7g. Continue to use database for data collection entry, data collection priorities, and compliance efforts	
	8. Data Collection			
	8a. Assign personnel for public rights-of-way data collection. 8b. Provide public rights-of-way training and data collection training to assigned individuals. 8c. Start public rights-of-way inventories giving priority to sites near upcoming projects so ADA improvements can be incorporated if necessary.	8d. Continue public rights-of-way inventories emphasizing priority areas.	8e. Continue public rights-of-way inventories except sidewalks.	8f. At the discretion of city, consider inventories for all sidewalks in public-rights of way. 8g. Consider exterior public city facilities inventories on buildings, parking areas. 8h. Consider conducting inventories on city maintenance facilities. 8i. Consider interior inventories of all buildings
Remediate Barriers Identified in Existing Inventories	**9. Barrier Removal**			
	9a. Identify projects that remove barriers to access.			
	9b. Develop a plan to consider ADA elements when programming projects into the CIP based on barrier prioritization	9c. As field data becomes available, continue to prioritize barriers and establish goals for barrier removal based on available funding		
	9d. Construct/upgrade ADA elements through new projects, maintenance projects and alteration projects			

Annual Update Report

Part 1: Completed Projects Containing ADA Improvements

Fiscal Year	Project Name and Location	Project Scope	Estimated Cost	ADA Features Addressed	
				Feature Type	Number of Features

Part 2: Completed Inventory or Program Administration/Communications Actions

Fiscal Year	Description

City of Gillette Statement of Technical Infeasibility

ROUTE OR STREET: _____

INTERSECTION & QUADRANT: _____

DESCRIBE REASON FULL COMPLIANCE IS INFEASIBLE:

Structural (bridge beams, buildings, basements, foundations, etc.)

Utilities (project scope would not otherwise require utility relocation)

Historic Preservation (historic buildings, districts, monuments, etc.)

Steep Existing Grades (maximum ramp slope requires runs to exceed 15 feet)

Right-of-Way (project scope would not otherwise require Right-of-Way)

Other:

CURB RAMP ELEMENT(S)	STANDARD	MAXIMUM OBTAINABLE COMPLIANCE
Ramp Slope	8.3% max	
Ramp Width	4 feet minimum	
Ramp Cross Slope	2% maximum	
Ramp Flares	10% maximum where walkable surface is adjacent to ramp	
Landing Dimensions	4 ft x 4 ft min	
Counter Slope (gutter pan)	5% max. with flush transition	
Landing Slope	2% max. (parallel and perpendicular to path of travel)	
Grade Break	Flush & 90° to direction of ramp travel	
Detectable Warning	Required	
Other		

COMPLETED BY: _____ **DATE**

REVIEWED BY: _____ **DATE**

Appendix F

Public Involvement

November 4, 2020

[Mr.] [Ms.] (Name)
(Company)
(Address)
(City, State Zip)

Subject: **Gillette ADA Transition Plan**
Public Open House

Dear [Mr.] [Ms.] (Name):

The City of Gillette, in partnership with DOWL, is hosting an informational open house to discuss the Gillette ADA Transition Plan effort. The project team will be available to discuss the project with the public and is interested in hearing about accessibility needs and current challenges.

When: November 19, 2020 from 4-7 p.m.
Where: City Council Chambers
201 E. 5th Street
Gillette, WY 82716

The purpose of an ADA transition plan is to start the process of setting policy and prioritizing improvements to the City of Gillette's infrastructure to enhance access for all. In addition to establishing the overall transition plan, this project will focus on inventory and assessment of a one square mile area along the 4J Road corridor between 6th Street and West 4J. This effort will provide guidance in adding accessibility features and eliminating accessibility barriers in future Gillette construction projects. The public is invited to attend the open house to learn about potential accessibility improvements, discuss the transition plan development with the project team, and offer thoughts regarding how you use the City infrastructure.

For more information about the effort and to offer virtual feedback, please visit: https://dowl.mysocialpinpoint.com/gillette-ada.

If you have any comments, questions, or concerns please feel free to contact me directly at lolmsted@dowl.com or (307) 363-5770.

Thank you very much for your time.

Sincerely,

Lisa Olmsted

Lisa Olmsted
DOWL Public Involvement Manager
lolmsted@dowl.com
(307) 363-5770

November 4, 2020

FOR IMMEDIATE RELEASE

Lisa Olmsted, Public Involvement Manager, (307) 363-5770, lolmsted@dowl.com

Open House to Discuss Gillette ADA Transition Plan

The City of Gillette, in partnership with DOWL, is hosting an informational open house to discuss the Gillette ADA Transition Plan effort.

The meeting will be November 19, 2020 at the City Council Chambers located at 201 E. 5th Street in Gillette. The open house will run from 4:00 to 4:00 pm. The project team will be available to discuss the project with the public and is interested in hearing about accessibility needs and current challenges.

The purpose of an ADA transition plan is to start the process of setting policy and prioritizing improvements to the City of Gillette's infrastructure to enhance access for all. In addition to establishing the overall transition plan, this project will focus on inventory and assessment of a one square mile area along the 4J Road corridor between 6th Street and West 4J. This effort will provide guidance in adding accessibility features and eliminating accessibility barriers in future Gillette construction projects. The public is invited to attend the open house to learn about potential accessibility improvements, discuss the transition plan development with the project team, and offer thoughts regarding how you use the City infrastructure.

For more information about the effort and to offer virtual feedback, please visit: https://dowl.mysocialpinpoint.com/gillette-ada.

Comments, questions, or concerns can be directed to Public Involvement Manager Lisa Olmsted at lolmsted@dowl.com or (307) 363-5770.

###

May 10, 2021

FOR IMMEDIATE RELEASE

Lisa Olmsted, Public Involvement Manager, (307) 363-5770, lolmsted@dowl.com

Draft Gillette ADA Transition Plan Available for Public Comment

The City of Gillette, in partnership with DOWL, has released a draft version of the Gillette ADA Transition Plan for public review and comment. Public input is important and will contribute to the final ADA transition plan, which will provide guidance in accessibility improvements to City properties. The draft plan is available at: https://dowl.mysocialpinpoint.com/gillette-ada. Comments can be submitted by phone (307-363-5770), or by email (lolmsted@dowl.com).

The purpose of an ADA transition plan is to start the process of setting policy and prioritizing improvements to the City of Gillette's infrastructure to enhance access for all. In addition to establishing the overall transition plan, this project has focused on inventory and assessment of a one square mile area along the 4J Road corridor between 6th Street and West 4J. This effort will provide guidance in adding accessibility features and eliminating accessibility barriers in future Gillette construction projects.

Comments, questions, or concerns can be directed to Public Involvement Manager Lisa Olmsted at lolmsted@dowl.com or 307-363-5770. For more information about the effort please visit: https://dowl.mysocialpinpoint.com/gillette-ada.

###

GILLETTE ADA TRANSITION PLAN

ENERGY CAPITAL OF THE NATION
GILLETTE, WYOMING

Gillette ADA Transition Plan Open House

When: November 19, 2020 from 4-7 p.m.

Where: City Council Chambers, 201 E. 5th Street, Gillette, WY 82716

The City of Gillette, in partnership with DOWL, is developing an ADA Transition Plan and your input is needed!

The purpose of a transition plan is to direct efforts and provide guidance in establishing an accessible transportation system within the City of Gillette.

Please join us for an open house to learn about potential accessibility improvements, discuss the transition plan development with the project team, and offer thoughts regarding how you use the City infrastructure. Guests are encouraged to follow social distancing guidelines and to wear masks. Masks will be available.

Information about the project and a virtual platform to provide input are available at: https://dowl.mysocialpinpoint.com/gillette-ada.

Comments, questions or concerns can also be directed to Public Involvement Manager Lisa Olmsted at lolmsted@dowl.com or by calling (307) 363-5770.

11/19/2020

GILLETTE ADA TRANSITION PLAN

Guest Register

Name	Address	Phone	Email	Property/Business Owner	Community Leader	Interested Citizen
Ann Rossi	701 Stocktrail	686-0804	ARossi@GillettSeniors.org	✓		
Dave Allison	1302 4th Ave	689-6793				
Todd Merchen	City of Gillette					

DOWL

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11/19/2020

GILLETTE ADA TRANSITION PLAN

Guest Register

Name	Address	Phone	Email	Property/Business Owner	Community Leader	Interested Citizen
Tina Bennett	425 W. Boxelder 82718	307-257-7555	tbennett@wilr.org			

DOWL

GILLETTE ADA TRANSITION PLAN

ENERGY CAPITAL OF THE NATION · CITY OF GILLETTE, WYOMING

Comment Card

Name: CHAD ALLISON

Address: 1302 W 2ND AVE

Phone: 682-6793

I am a:

- ☐ Property or Business Owner on Project Corridor
- ☐ Community Leader
- ☒ Interested Citizen

Comment:

CITY SHOULD PARTNER WITH COUNTY SENIOR CENTER & SCHOOLS AND CAMPBELL COUNTY HEALTH TO POOL COST WITH TRANSPORTATION RELATED SERVICES

Comments can also be emailed to lolmsted@dowl.com.

Comments can also be made using the interactive map at: https://dowl.mysocialpinpoint.com/gillette-ada

Thank you for your interest in this project!

MEETING SUMMARY

PROJECT:	Gillette ADA Transition Plan	DATE:	8/9/2021
PROJECT NUMBER:		TIME:	11:00 am
ORGANIZER:	Lisa Olmsted	SUBJECT:	Draft Transition Plan

ATTENDEES:	ORGANIZATION:
Tina Bennett	Wyoming Independent Living
Taylor Prim	Community Member
Serena Heck	Community Member
Rose Rennell	Wyoming Independent Living
Nathan Appledorn	Community Member
Vicki Swenson	Community Member
Josh Richardson	City of Gillette
Mark Hines	DOWL
Cody Salo	DOWL
Lisa Olmsted	DOWL

ADA Transition Plan Overview

- Community by community effort funded by Wyoming Department of Transportation with federal funds
- Purpose is to set the City up to make improvements
- Focused on City streets and rights of way. Not looking at city buildings yet but those will come in the future.
- Draft document put out in April for public comment. Will be finalized and adopted by the City soon.
- Shared project area map
- Inventoried a sample area along Enzi Drive to look at ADA facilities
- Also looked at City regulatory codes and standards. Made recommendations for improvements.
- Recommended the City designate an ADA coordinator.
- Gillette is the first city in Wyoming to develop a plan like this, but other will follow. This will guide other efforts, so we want to do the best job we can. Your input is important.
    - WYDOT program: ADA Transition Plan
- Draft plan includes recommendations and next steps
- City plans to work with other agencies to address issues (WYDOT, for example)
- City has a start of a Change of Standards document to support response to public wishes

Public comments:

- Taylor: South of 4J/Enzi Drive connection at stoplight is an issue.

    - Josh mentioned that improvements are planned for the corridor already. New push-buttons will have tones. Corner ramps and crosswalks will be improved. Sometimes, Gillette's plan goes beyond the national standards.
- Nate: Is there a plan for snow removal?
    - The need for maintenance of ramps is included in the study, but snow removal in front of residences and businesses is the responsibility of the landowner.
    - The City has a priority list for snow removal that includes some key sidewalks and pathways. Public comment on priorities for pedestrians is important so the City can plan for handicap needs.
- Nate: Was public transit considered as a part of this study?
    - That wasn't part of this study.
- Serena: Is there a standard curb mat (detectable warning device)? Highway 14/16 and Douglas Highway; curb mat is really close to the street.
    - There are standards; typically in a new installation it's 5 feet wide x 2-2.5 feet long. Orientation is also important. A lot of communities are orienting them directionally, which helps to guide users and pushes the warning device.
    - Former requirements called for these warning devices to be immediately behind the curb, but that's changing.
    - ADA devices continue to evolve.
- Vicki: Very pleased that the City is looking at this. These improvements are good for everyone.
- Tina: Implementation plan and schedule – is the ADA advisory committee community wide or just City staff? Cheyenne and Casper each have a "Mayor's Council for People with Disabilities".
    - The City is working on various systems to make the process cleaner. The City Clerk is going to be the point-person for ADA concerns. The City does want the handicap community to be involved. Committees will include participants from the community.
    - Gillette is very open to citizen comments and want more public participation.
- Taylor: "Accessibility" is sometime seen as a bad word, but accessibility features are a part of everyday life; it would be nice for people to understand that these improvements are good for everyone, not just the handicapped community.
- Taylor: Will the lip at the edge of curb ramps be thinner/same/different?
    - One of the biggest City concerns deals with the lip; balancing the needs of drainage vs. wheelchair use is challenging. Working to recognize and address. City standard is currently about .5 inch, but very few existing ramps meet the standard and this may be reduced.

Lisa's contact information: lolmsted@dowl.com or 406-869-6329

Josh's contact information: josh@gillettewy.gov

To Whom It May Concern,

My name is Laurel Henry and I am a Certified Orientation and Mobility Specialist who teaches individuals who are blind or have low vision to travel safely and independently.

I am writing you concerning the intersection of Brooks and Second Street. This is a challenging intersection with a high volume of traffic.

I visited the intersection last week. The APS continually beeped not changing with the traffic cycle or when the pedestrian button was pushed. It does not allow enough time to get across the street on one crossing as it gives the pedestrian 5 seconds to get across the street.

I would be glad to provide additional feedback and help with assessment or safety of different intersections.

Sincerely,

Laurel Henry

COMS

Input from two Gillette residents who are blind and could not be at todays' meeting are:

- Would like to see push button crossing lights at all intersections from Shoshone Ave to Lakeway on 4J road. This is due to the high amount of vehicle and foot traffic from the college buildings, the high school, the rec center and the residential areas. (One of the gentleman who are blind live in Sutherland subdivision).
- Would like to see push button or APS crossing signals Lakeway/South douglas high intersection, and a few others along Lakeway and South douglas Hwy. This individual lives in the old SkyHi theatre area and must walk for shopping to Walmart and surrounding businesses.

If there is not enough time today, perhaps we can discuss these possibilities at a second meeting?

Tina Bennett

INPUT FROM RENNIE MAKI – COMS

Concerns for blind persons:

Warlow/gurley intersection – Sometimes it is really busy and sometimes not. It would help to add a few more sidewalks. One of the problems at this intersection are right turning vehicles. A blind person may not be able to hear the APS over the big trucks roading. Not enough time to line up the direction they need to be going and get across the street.

Curb aprons – line a blind person up right into the middle of traffic.

14-16/warlow – Acctuated light. Not enough time to get across the street.

West 4J /Enzi (on the corner of Sutherland subdivision). She commented that she does like the marking and that help sighted persons. However, it still does not give the blind person who wants to cross any information.

Rennie wondered if it is possible to make another train track crossing at Butler Spaeth.

Rennie Maki – please feel free to call her with any questions at 689-4784. She is a certified orientation and mobility specialist teaching blind persons to travel safely with a cane.

To Whom It May Concern,

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I would be glad to provide additional feedback and help with assessment or safety of different intersections.

Sincerely,

Laurel Henry

COMS

Accessible Pedestrian Signals (APS)

What is an APS?

Accessible Pedestrian Signal and pedestrian pushbutton â€" an integrated device that communicates information about the WALK and DON'T WALK intervals at signalized intersections in non-visual formats (i.e., audible tones and vibrotactile surfaces) to pedestrians who are blind or have low vision. (*Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way*, Advisory R209)

Major functions of APS

APS can provide information to pedestrians about:

- Existence of and location of the pushbutton
- Beginning of the WALK interval
- Direction of the crosswalk and location of the destination curb
- Intersection street names in Braille, raised print, or through speech messages
- Intersection signalization with a speech message
- Intersection geometry through tactile maps and diagrams, or through speech messages

Benefits of APS

Research has found that APS improved crossing performance by blind pedestrians

- More accurate judgments of the onset of the WALK interval
- Reduction in crossings begun during DONT WALK
- Reduced delay
- Significantly more crossings completed before the signal changed

Sighted pedestrians also begin crossing faster.

****In the past ten years, changes in intersection design and signalization (see Chapter 3) have affected the traditional street crossing techniques used by blind pedestrians, making the pedestrian phase harder to recognize without seeing the visual pedestrian signal. In addition, it has become essential to cross during the pedestrian phase at many intersections. These changes have lead to more requests for APS and advocacy for their installation in recent years.

How People Who are Blind or Visually Impaired Cross Streets

Traditional techniques

Techniques and cues used in crossing streets are diverse and vary by the type of location and by the individual and his or her level of vision. Individuals who are blind or visually impaired often travel to unfamiliar areas and intersections and gather information from available sources in order to do so safely.

The discussion of techniques below describes typical techniques used at unfamiliar intersections, although most travel by pedestrians who are blind is probably on routes with which they are familiar. However, it is also not uncommon for bus drivers or taxi drivers to provide incorrect information about the location or drop off a person at a slightly different location than expected, so it is necessary to regularly confirm information using nonvisual techniques described below.

Once pedestrians who are blind are familiar with an intersection, they do not usually need to analyze the intersection and traffic control system at length every time. However, they still may need to listen long enough to determine that they are at the correct location and that the signal is functioning as usual. Pedestrians who are blind will still need to detect the street, align to cross, identify the WALK interval, and maintain alignment while crossing. APS can particularly assist with the task of identifying the WALK interval at familiar and unfamiliar locations.

Detecting the street

The first information needed by pedestrians who are blind is "Have I arrived at a street?" People who are blind or visually impaired use a combination of cues to recognize the street edge. These may include:

- Curb or the slope of the ramp
- Truncated dome detectable warnings, if available
- End of building line and open sound of the intersection
- Sound of traffic on the street beside them (the parallel street)
- Sound of traffic stopping on the street they are approaching (the perpendicular street)
- Presence of pedestrians

- Presence of an intersecting sidewalk

Identifying the street

The next information needed for decision-making at unfamiliar intersections is: "Which street is this?"

- This information is only occasionally provided in any accessible format.
- Pedestrians who are visually impaired develop a mental map and keep track of where they are within that map, usually by counting blocks and street crossings.
- Where necessary, and available, assistance may be sought from other pedestrians.

Analyzing intersection geometry

The next information needed is: "What is the geometry of this intersection?" including:

- Is my destination curb straight in front of me, or must I angle to the left or right to reach it?
- How many streets intersect here?
- How wide is this street?
- Should I expect to encounter any islands or medians as I cross this street?
- Am I standing within the crosswalk?

This information may be immediately available to pedestrians having full vision, but it may not be possible for pedestrians who are blind to determine this information by listening to traffic patterns. Incorrect or missing information for any of these questions may result in missing the destination curb or median.

Analyzing the traffic control system

Next, pedestrians with visual impairments need to know: "What is the type of traffic control system at this intersection?", including:

- Is this a signalized intersection?
- Do I need to push a button to actuate the WALK interval? If so, where is the button?
- Is the button close enough to the crosswalk that I will have time to push the button, position myself correctly at the crosswalk, and reestablish my alignment facing the destination curb before the onset of the WALK interval?

- Which button controls the WALK interval for the street I want to cross?
- Does it stop traffic on one street, or all traffic?
- Do cars still turn during the WALK interval?
- Is there a second button on the median or crossing island that I must push?
- Will there be a surge of parallel traffic telling me the WALK interval has begun? Will I be able to hear it over other, concurrent traffic sounds?

Techniques for gathering this information include listening to traffic patterns through several signal cycles and searching the sidewalk area for poles with pushbuttons. Missing information for any of these questions may result in failure to use pedestrian pushbuttons, not beginning the crossing during the WALK interval, not completing the crossing before perpendicular traffic begins moving, and crossing at times other than the pedestrian phase.

Aligning to cross

Before starting to cross, the pedestrian must align to cross or choose a heading for the crossing. Typical techniques for this task include maintaining the alignment used on the approach to the intersection and listening to parallel traffic through a signal cycle to confirm alignment to parallel traffic. The need to use pedestrian pushbuttons often prevents the use of parallel traffic for alignment. After pushing the button, the pedestrian must cross on the next pedestrian phase, which is usually the next time that traffic begins moving parallel to the pedestrian's crosswalk.

Identifying the WALK interval

After determining the geometry of the intersection, aligning to face towards the destination curb, determining that the intersection is signalized and having pushed a button, where necessary, pedestrians who are blind need to know: "When does the WALK interval begin?"

In the most common technique utilized for crossing at signalized intersections, pedestrians who are blind or visually impaired begin to cross the street when there is a surge of traffic on the street parallel to their direction of travel. This technique is dependent upon the presence of traffic and consistent signal phasing. Various types of

phasing and intermittent or low volumes of traffic traveling parallel to the pedestrian may affect the reliability of that technique.

Maintaining crossing alignment

Once the pedestrian who is blind has begun to cross the street, the next question is: "Am I headed straight towards my destination curb?"

- Traffic going in the same direction on the parallel street provides helpful auditory guidance to many persons if it is present. In addition, pedestrians who are blind may use traffic waiting on the perpendicular street as a partial alignment cue.
- Turning traffic can make it difficult to hear and align with the traffic traveling straight through the intersection.
  In the absence of traffic on the parallel street, pedestrians who are blind are more likely to veer toward or away from the intersection.

Changes in the Travel Environment

Types of changes

In the past twenty years, significant changes in intersection geometry, signalization, driver behavior, and the technology of automobiles have affected the ability of blind travelers in the United States to use the above-mentioned techniques.

Intersection design changes and their effect on travel techniques

- Wider streets require more precise alignment.
- Large radius corners make alignment more difficult and increase crosswalk length.
- Curb ramps and depressed corners make street detection and alignment difficult.
- Medians and islands complicate wayfinding and alignment.
- Presence of slip lanes and splitter islands requires crossing in gaps in traffic even at signalized intersections.
- Crosswalk alignment is not consistent.
- Curb extensions, also called bulb-outs or intersection chokers, sometimes complicate wayfinding.

- Raised crosswalks and tabled intersections may obliterate the sidewalk/street boundary.

Driver behavior and technology of autos

- Aggressive and inattentive drivers are moving faster and less likely to stop for pedestrians.
- The technology of cars, including hybrid and electric cars, has become quieter, making them harder for pedestrians who are visually impaired to hear.
- In many areas there is less pedestrian traffic and drivers are less aware of pedestrians.

Signalization changes

Intersection signalization has become more complex. Details on signalization and the effect on travel by pedestrians who are blind are provided in Chapter 3.

Introduction

Intersections and signals have become more complex and it is important that Orientation and Mobility (O&M) Specialists and blind travelers understand these changes for safe travel. Skills and strategies used by pedestrians who are blind or visually impaired to cross streets at signalized intersections were developed at intersections that had pretimed signals, which meant the signal changed on a regular basis. Signalization has also become more complex, with the introduction of vehicular and pedestrian actuation and multiple phases. This increased complexity has made some previously accessible intersections now inaccessible for pedestrians with visual impairments.

It is essential for O&M Specialists to understand these changes so that they are incorporated into their curriculum and so that these specialists can adapt their instructional techniques and advocate for their consumers' needs.

This chapter gives an overview of the decisions, design, and terms that are used by traffic engineers as they design and install traffic signals.

Intersection Signalization and Timing Plans

Intersection signalization

Intersections are generally designed to provide optimal vehicle traffic flow. Timing plans may be of two general types:

- fixed time (or pretimed)
- actuated

A signal at a given intersection may be designed to change from actuated to pretimed to flashing mode depending upon:

- time of day (peak periods vs. non-peak periods);
- day of week; and
- malfunctions due to power outages.

It is important for O&M Specialists to understand the signal design and terminology to teach these concepts to their students.

There is some variability in timing plans in different municipalities and in different locations, depending on the roadway needs and local practices.

Signal design terms

Phase — the right-of-way, yellow change, and red clearance intervals in a cycle that are assigned to an independent traffic movement or combination of movements

Interval — the part of a signal cycle during which signal indications do not change

- In other words, a phase is the time allotted to a specific movement, such as northbound traffic, whereas an interval is how long the light stays green, yellow, or red for vehicles or WALK, flashing DONT WALK, or DONT WALK for pedestrians.

- Busier intersections typically have separate phases for left turn movements (i.e., protected left turns). When a major road intersects a minor road, the green intervals for the major road will be longer than those for the minor road to accommodate the heavier traffic on the major road.
- Although the *MUTCD* gives specific definitions to "phase" and "interval", these terms are often used interchangeably by traffic engineers.

Cycle — sum total of all phases at a signal

- A cycle is timed from the start of one phase to the start of that same phase when it comes around again.
- Larger, busier intersections will commonly have longer cycles.

Pretimed (Fixed time) signals

Pretimed intersections operate in predetermined and predictable fashion.

- Regularly repeated sequence of phases (often 30 seconds or more), regardless of traffic flow
- Length of phases may change at different times of day, based on a consistent timing plan, for example, one street may have longer phases at peak hours than non-peak hours
- Still found in many locations, particularly in downtown areas

Actuated signals

Figure 3-1. Photograph of vehicle detector loops in pavement

Figure 3-2. Photograph of vehicle detector loop in pavement

Actuated signals change the length and/or order of the phases in response to variations in vehicle or pedestrian traffic.

- Detectors monitor traffic and send signals to the traffic signal controller. Detectors are most often inductive loops (electric), though they may be magnetic, microwave, video, and other detection technologies.
- Pushbuttons are most often used for pedestrian detection, though other "pedestrian sensing" technologies (microwave, infrared, piezoelectric) may be used as well.
- Used where traffic volumes fluctuate or where it is desirable to minimize interruptions to traffic flow on the major street. Detectors are often placed on minor roads and in turn lanes to detect when a motorist is waiting to make a turn.
- Vehicular actuation allows the cycle to skip phases, so pedestrians with visual impairments cannot accurately predict, based on previous experience, when in the cycle the pedestrian phase will begin.
- Some actuated signals may provide very short phases to accommodate a single vehicle, without provision of a pedestrian phase during that cycle. A pedestrian who is blind crossing parallel to that vehicle may not realize that a pedestrian phase is not provided during that vehicle's movement.

The extent of actuation is dependent on geometric and operational requirements, but is generally categorized as either semi-actuated or fully actuated.

Semi-actuated signals

- Common at the intersection of a main road and a minor side street

A protected turn is made without opposing through vehicular traffic or pedestrian crossing.

- Denoted for motorists by a green arrow
- Typically activated by a vehicle detector
- The signal phasing "protects" vehicles by prohibiting the opposing movements, including pedestrian movements
- Protected turns require a separate signal phase, which leads to multiphase signalization (more than two phases at the intersection)

Permissive turn

Figure 3-4. Permissive green ball signal

A permissive turn is made across an opposing flow of through vehicles and/or pedestrians.

- Typically denoted for motorists by a circular green (green ball) signal
- The driver is "permitted" to cross the opposing through flow, but must select an appropriate gap in the opposing traffic stream through which to turn
- The driver must also yield to pedestrians who are crossing lawfully within the intersection
- This is the most common type of left-turn phasing at signalized intersections, and is used both when left-turn volumes are not excessive and where adequate gaps of sufficient size exist in the opposing traffic to accommodate turns safely

Design of turning movements

Concurrent (dual) left turns

- Two directions of turning traffic (eastbound and westbound) proceed together as the opposing through traffic on the same approaches is stopped (protected left turn phasing)
- Can be activated either before or after the opposing through flows have had their green phase. If the left turn comes before the opposing through movement, it is called a "leading left turn". If it comes after, it is called a "lagging left turn". Leading left turns, which are much more common than lagging left turns, can create safety problems for blind pedestrians, since the surging left turn traffic may be mistaken for the parallel through traffic surge.

Split or non-concurrent phasing

- Split phasing provides separate green time to vehicles on opposing approaches
- In typical signal design, the northbound and southbound through movements run simultaneously, as do the eastbound and westbound through movements. At offset intersections and locations where there are heavy turn movements, split phasing may be used to allow movements on each approach to move independently of other approaches.
- Pedestrian phases for parallel crosswalks will be activated at different times. The pedestrian phase for a crosswalk will coincide with the through traffic movement immediately adjacent to that crosswalk.
- Where there is split phase timing, the surge of parallel vehicles beside the pedestrian may be mistaken as indicating the onset of the WALK interval and blind pedestrians may cross into the paths of left turning vehicles. In addition, the heavy flow of turning traffic may be mistaken for the surge of traffic on the street beside the blind pedestrian, when the traffic is actually on the street the pedestrian is crossing.

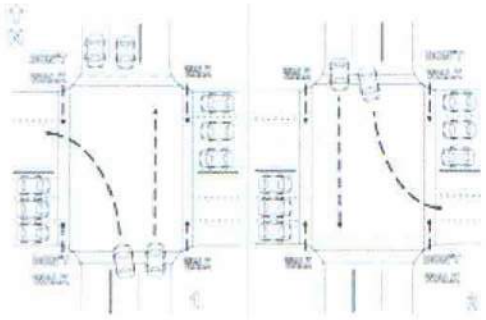

Figure 3-5. Illustration of split phasing

Example of northbound/southbound movements running under split phasing (see Figure 3-5):

1. Northbound traffic, including traffic turning east and west, moves on one signal phase, (southbound traffic and all traffic on the E/W street have a red signal at that point). The pedestrian phase usually is provided at this time for pedestrians on the east crosswalk
2. Northbound traffic receives a red light while all southbound traffic, including turning traffic, is allowed to go. The pedestrian phase usually provided at this time is for pedestrians crossing on the west crosswalk

Flashing operation

Signals may only operate during peak periods of the day and may switch to flashing operation at non-peak hours, late at night, or in response to a signal malfunction.

- Signals no longer operate under stop-and-go sequencing
- Signals usually flash red for side streets and flash yellow for the main street or flash red for both streets
- Pedestrian signal heads (WALK/DONT WALK signs) are dark and APS are silent

Coordinated systems

Coordinated systems provide automated control of signal timing to two or more signalized intersections.

Instead of looking at an intersection in isolation, coordinated systems look at an entire arterial or network of intersections and make signal timing adjustments that benefit (optimize) the operation of the entire system.

System changes are a result of traffic volume and travel times. Most often, a central controller (computer) provides the primary control and communicates with individual controllers located at each intersection.

Coordinated control has a number of advantages from a vehicle perspective:

- Signals can be controlled from a central traffic management center
- The detection elements of the system can be used to predict future flows within the network and adjust the signal timing proactively instead of reactively

Signals in a coordinated system can present problems for blind pedestrians:

- The green time given for vehicles on the intersecting road (not the road whose signals are coordinated) may be less than normal to fit into the timing scheme of the coordination
- This shorter time can be insufficient for pedestrians to cross the major road. Pedestrian who are blind will not know that there is insufficient time and may directly conflict with the approaching platoon of traffic on the major road. This demonstrates a need for APS at the intersection.

Vehicular Signals and Timing

Meaning of signals

The use of particular traffic signal colors and symbols, and their meaning, is described in Part 4 of the *MUTCD*. Signs and pavement marking used at signalized intersections are covered in Parts 2 and 3 of the *MUTCD*, respectively.

Although this section presents basic traffic laws concerning signals, **it is important to be well educated on the specific laws of the state of interest**. Some laws, such as right-turn-on-red-arrow, vary from state to state. Most states provide a Drivers Handbook that presents this sort of information.

Steady green signal

Circular green (green ball):

- Traffic, except pedestrians, may proceed straight through or turn right or left except as such prohibition signs or markings modify movement. Vehicles turning right or left shall yield the right-of-way to pedestrians lawfully within the intersection.

Green Arrow:

- Traffic may make the movement indicated by the green arrow. Opposing vehicle and pedestrian movements will be given a red signal or DONT WALK indication.

Pedestrian movement:

- Pedestrians may cross unless a green arrow indicates conflicting traffic will cross into their path or unless a pedestrian signal indicates otherwise

Steady yellow signal

- Warning that the green interval has ended and the red signal will begin.

Pedestrian movement:

- Pedestrians do not have enough time to cross and should not initiate a crossing.

Steady red signal

- Traffic must stop at the stop line, before the crosswalk lines, or before the intersecting street.

Right turn on red:

- Unless a sign or local law prohibits right turn on red, vehicles must come to a complete stop but are allowed to then proceed with the turn if a safe gap in traffic is available.
- Turning vehicles must yield right-of-way to pedestrians and traffic already in the intersection.
- Right-turn-on-red makes it harder to determine the surge of traffic at the onset of vehicular green on the street parallel to the crossing direction. Blind travelers must wait to hear a car traveling straight across the intersection to determine that the light has changed, so they frequently are delayed in initiating crossings while they determine that parallel traffic flow has begun.

Left turn on red:

- This maneuver involves a left turn from a one-way street onto another one-way street on a red signal (same procedure as stated above for right turn on red). This is not allowed in some states.

Red arrow:

- Vehicles must stop at a stop line, before the crosswalk lines, or before the intersection. Some states allow vehicles to turn right on red after stopping.

Pedestrian movements:

- Pedestrians should not enter the roadway in the direction of travel controlled by a steady red signal

Flashing yellow

- Proceed with caution, treated like Yield sign

Flashing red

- Stop, then go, treated like Stop sign

Flashing red arrow & flashing yellow arrow

- Typically have the same meaning as flashing circular signal indication, except they apply only to vehicular traffic intending to make the movement indicated by the arrow.
- In some states, flashing circular yellow and yellow arrow indications may be used during stop-and-go traffic signal operations for permissive left-turn indications (same control as a green ball for left turns)
- In some states, flashing circular red and red arrow indications may be used during stop-and-go traffic signal operations for permissive left-turn indications

Other Intersection Terminology

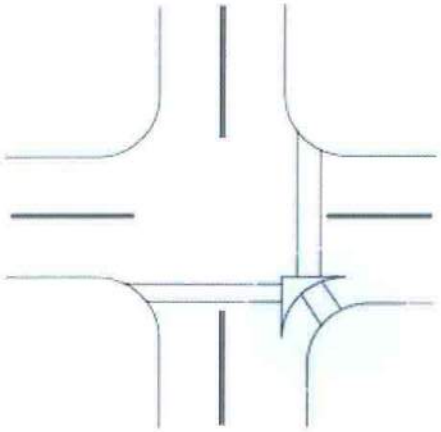

Figure 3-6. Channelized right turn lane

Channelized turn lane (slip lane) — a turn lane that channels turning drivers to a position where they will either yield to oncoming traffic or complete a "free flowing" turn, which means the turning vehicles have a dedicated lane on the road they are entering and therefore do not need to stop or yield to traffic.

Pedestrian Signals and Timing

Visual pedestrian signals

Pedestrian signal heads ("pedheads") are installed at some intersections to instruct pedestrians when it is lawful to cross. This is typically done where there is a significant amount of pedestrian activity or for safety-based reasons, such as the possibility of confusion for pedestrians taking cues from the traffic signal.

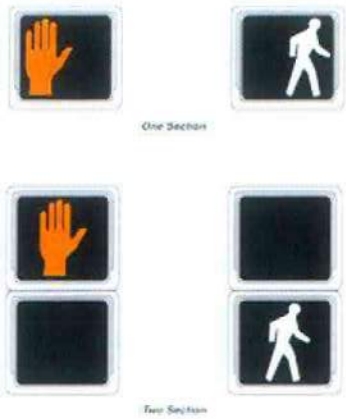

Figure 3-7. Typical pedestrian signal symbols

Pedestrian signals have three intervals:

- WALK interval — White WALK or symbol of a person walking issued to indicate that pedestrians should begin crossing, after yielding to vehicular traffic still legally in the crosswalk.
- Change interval — Orange flashing DONT WALK or symbol of a flashing hand is used when pedestrians are not supposed to begin a crossing because there is not enough time left in the phase for most pedestrians to get all the way across the street. Pedestrians that have already begun to cross should finish crossing.
- DONT WALK interval — Steady orange DONT WALK or symbol of a hand is used when pedestrians are not supposed to be in crosswalk

Some locations also use pedestrian countdown signals. These signals provide the countdown in seconds for the remaining time allotted during the change interval.

Figure 3-8. Correct display of pedestrian countdown signal (counting down during flashing DONT WALK)

Figure 3-9. Incorrect display because countdown is displayed during WALK interval

- Countdown signal supplements the WALK/DONT WALK signals, rather than replacing them.
- *MUTCD* guidance stipulates that the countdown should only be displayed during the flashing DONT WALK interval because of inconsistencies of the countdown during WALK at actuated signals. However, many cities are still using signals that display the countdown during the WALK interval (see Figure 3-9). Pedestrians with low vision have had problems distinguishing the countdown numbers from the orange flashing hand symbol when they are displayed alongside the white walking-man symbol.

Pedestrian signal timing

Pedestrian signal timing design deals with the length of the WALK and change intervals. The WALK interval is typically short (around 4 to 7 seconds). The change interval is designed to be long enough for a pedestrian to cross the street. This is typically calculated assuming a walking speed of 3.5 to 4 feet per second. Parking lanes might be excluded from the calculation.

The green time for the parallel traffic movement is calculated based on the time necessary for a pedestrian to cross the street (see equation below).

The figure 3-10 below illustrates how the vehicle and pedestrian phases overlap. Time is the horizontal axis in the picture. This is a typical signal timing diagram used by traffic engineers in the design of the signal timing.

$$\text{Minimum Green Time} = \text{WALK interval} + \underbrace{\frac{\text{Crosswalk Length}}{4.0 \text{ ft/sec}}}_{\text{Flashing DON'T WALK}}$$

Equation

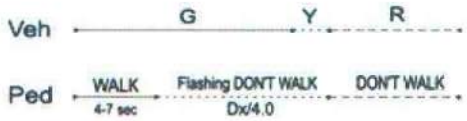

Figure 3-10. Illustration of the overlay of vehicle signal and pedestrian signal timing

Pedestrian phase actuation

Some signals are designed so that the pedestrian phase is actuated by a pushbutton.

- Pressing the pushbutton calls a pedestrian phase which allows enough time for the pedestrian to cross at average walking pace
- Without pushing the button, there may not be enough time programmed into the vehicular phase for a pedestrian to cross the street. If the button is pressed, the pedestrian phase may begin immediately or will begin at a certain point during the following cycle.
- Extent of the delay before it begins will vary depending on the programming of the phases for that intersection and when the button was pushed within the cycle
- Blind pedestrians have traditionally waited through a light cycle to assess and refine their heading by listening to vehicular trajectories, before crossing on the next pedestrian phase. At a pedestrian-actuated intersection, that is not possible because pedestrians have to cross on the next pedestrian phase after pushing the button. If they do not cross at that time, it is necessary to locate and push the button again (and re-establish their alignment).

Passive pedestrian detection

- Pedestrians may be detected passively (without pushing a button) as they approach the crosswalk area through the use of microwave, infrared or piezoelectric technologies.
- Future developments may impact whether or not an APS with a locator tone is necessary at an intersection that uses passive detection. One issue for consideration is that pedestrians may not realize they have been detected.

Leading pedestrian intervals

- Provides a pedestrian WALK interval 2 to 4 seconds before the vehicular green, allowing pedestrians a head start so they are in the intersection before vehicles start up.

- However, this can be a disadvantage to pedestrians who are blind or visually impaired who rely on the surge of traffic to recognize when the signal is green. If these pedestrians begin crossing with the surge of parallel traffic where a leading pedestrian interval is used, they will have less time to cross than was designed. Also, when pedestrians do not initiate their crossing at the onset of the WALK interval, drivers may interpret this to mean that the pedestrians are not intending to cross.
- Pedestrians who are blind or visually impaired do not know about the leading pedestrian interval at unfamiliar intersections unless there is an APS installed.

Exclusive pedestrian phasing

- All vehicles have a red light during the WALK interval and all crosswalks have the WALK signal at the same time.
- Typically done to increase pedestrian safety. At some locations, right-turn-on-red is allowed during the pedestrian phase.
- Crossings may be made diagonally for pedestrian efficiency.
- Exclusive pedestrian phasing may be followed by an extended time for one or more of the crosswalks.
- Exclusive pedestrian phasing may be beneficial to pedestrians with mobility impairments and cognitive disabilities as it allows time to cross when no or few vehicles are moving through the intersection. However, it is a disadvantage for pedestrians who rely on traffic sounds to determine the signal phases. In addition, initial alignment and maintaining alignment during crossings may be difficult due to the absence of parallel moving traffic.

Ped recall

- WALK indication will be given every cycle (as if someone were always there pushing the button).

Rest-in-WALK

- Pedestrian signal to cross the minor street remains in WALK as long as the major street has green, and there is no call on the minor street
- When a vehicle approaches on minor street and is detected, the pedestrian signal to cross the minor street changes to flashing DONT WALK
- APS during Rest-in-WALK: instead of sounding constantly, some APS manufacturers provide a limit switch that limits the length of the audible WALK indication to seven or eight seconds, but recalls the audible and vibrotactile indications of the WALK if the button is pressed when there is adequate clearance time remaining.

Where are APS needed?

When considering and prioritizing crossings and intersections for retrofit with APS, consideration needs to be given to the information available to pedestrians who are blind and which crossings are in greater need of the APS. A number of factors enter into that decision.

MUTCD Guidance

The MUTCD Section 4E.0 9 recommends: " *If a particular signalized location presents difficulties for pedestrians who have visual disabilities to cross the roadway, an engineering study should be conducted that considers the needs of pedestrians in general, as well as the information needs of pedestrians with visual disabilities. The engineering study should consider the following factors:*

The installation of accessible pedestrian signals at signalized locations should be based on an engineering study, which should consider the following factors:

- Potential demand for accessible pedestrian signals;
- A request for accessible pedestrian signals;
- Traffic volumes during times when pedestrians might be present; including periods of low traffic volumes or high turn-on-red volumes;
- The complexity of traffic signal phasing (such as split phases, protected turn phases, leading pedestrian intervals, and exclusive pedestrian phases); and
- The complexity of intersection geometry."

Additional considerations

Locations that may need APS include those with:

- Vehicular and/or pedestrian actuation
- Very wide crossings
- Crossings of major streets where minor streets have minimal or intermittent traffic (APS may be needed for crossing the major street)
- T-shaped intersections

- Non-perpendicular or skewed pedestrian crossings
- Low volumes of through vehicles
- High volumes of turning vehicles
- Split phase signal timing
- Exclusive pedestrian phasing, especially where right-turn-on-red is permitted
- Leading pedestrian intervals

Where these conditions occur, it may be impossible for pedestrians who are visually impaired or blind to determine the onset of the WALK interval by listening for the onset of parallel traffic. It would also be difficult to obtain usable orientation and directional information about the crossing from the cues that are available. Too little traffic is as great a problem for pedestrians who are blind as too much traffic. In the absence of APS, blind pedestrians must be able to hear a surge of traffic parallel to their direction of travel in order to know when the WALK interval begins.