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JOINT CITY OF GRAND JUNCTION/MESA COUNTY PLANNING COMMISSION AGENDA
CITY HALL AUDITORIUM, 250 NORTH 5TH STREET

TUESDAY, APRIL 26, 2016, 6:00 PM

City of Grand Junction Planning Commission

Christian Reece, Chairman
Ebe Eslami, Vice Chair
Jon Buschhorn
Keith Ehlers
Kathy Deppe
Steve Tolle
Bill Wade
Dr. George Gatseos (1st Alternate)
Aaron Miller (2nd Alternate)

Mesa County Planning Commission

Rusty Price, Chairman
Christi Flynn, Vice Chair
William Page, Secretary
Joe Moreng
Phillip Jones
David Hartmann
George Skiff
Ron Wriston (1st Alternate)
Bill Somerville (2nd Alternate)
Bob Erbisch (3rd Alternate)

Call to Order

Welcome. Items listed on this agenda will be given consideration by the City of Grand Junction Planning Commission. Please turn off all cell phones during the meeting.

Copies of the agenda and staff reports are located at the back of the auditorium.

Announcements, Presentations and/or Prescheduled Visitors

Consent Agenda

Items on the consent agenda are items perceived to be non-controversial in nature and meet all requirements of the Codes and regulations and/or the applicant has acknowledged complete agreement with the recommended conditions.

The consent agenda will be acted upon in one motion, unless the applicant, a member of the public, a Planning Commissioner or staff requests that the item be removed from the consent agenda. Items removed from the consent agenda will be reviewed as a part of the regular agenda. Consent agenda items must be removed from the consent agenda for a full hearing to be eligible for appeal or rehearing.

*** * * END OF CONSENT CALENDAR * * ***

*** * * ITEMS NEEDING INDIVIDUAL CONSIDERATION * * ***

Public Hearing Items

On the following item the Grand Junction Planning Commission will make a recommendation to City Council. The Mesa County Planning Commission will take final action. If you have an interest in this item or wish to appeal an action taken by the City Planning Commission, please call the City Planning Division (244-1430) or call the Mesa County Planning Division (244-1636) after this hearing for additional information.

1. Wireless Master Plan **Attach 1**

The City of Grand Junction Planning Commission will consider a recommendation to City Council and the Mesa County Planning Commission will consider Adoption of the Wireless Master Plan, an amendment to the Grand Junction Comprehensive Plan, which is intended to help guide the development and construction of wireless infrastructure and align the needs of wireless broadband service providers with government and community objectives.

CITY FILE #	CPA-2016-113
REPRESENTATIVE:	City of Grand Junction Planning Division
PLANNER:	David Thornton, (970)244-1450, davidt@ci.grandjct.co.us
COUNTY FILE #:	2016-0049 MP
REPRESENTATIVE:	Mesa County Planning Division
PLANNER:	Kaye Simonson, (970) 255-7189, kaye.simonson@mesacounty.us

The Wireless Master Plan is a joint effort between the City of Grand Junction and Mesa County.

Details can be found at the following link:
http://www.mesacounty.us/planning/proposed-master-plan-amendments.aspx
http://www.gjcity.org/WirelessMasterPlan.aspx

City Staff Recommendation: Forward recommendation to City Council of approval.
County Staff Recommendation: Approval

*****Mesa County Planning Commission will be dismissed for the following Agenda Item*****

2. Zoning Code Amendment **Attach 2**

The City of Grand Junction Planning Commission will consider a recommendation to the City Council of the adoption of a zoning code amendment to amend the section on communication facilities.

CITY FILE#	ZCA-2016-112
REPRESENTATIVE:	City of Grand Junction Planning Division
PLANNER:	David Thornton, (970)244-1450, davidt@ci.grandjct.co.us

City Staff Recommendation: Forward recommendation to City Council of approval.

General Discussion/Other Business

Nonscheduled Citizens and/or Visitors

Adjournment

Date: April 14, 2016

Author: David Thornton, Kaye Simonson

Title/ Phone Ext: Principal Planner / x.1450; Lead Planner / 255-7189

Proposed Schedule: Planning Commission April 26, 2016

File # (if applicable): CUP-2015-477

Attach 1

JOINT CITY AND MESA COUNTY PLANNING COMMISSION AGENDA ITEM

Subject: WIRELESS MASTER PLAN **Grand Junction:** Amending Title 31 Comprehensive Plan by adding Section 31.12 Wireless Master Plan (CPA-2016-113) **Mesa County:** Adoption of the Wireless Master Plan (PRO 2016-0049 MP)
Action Requested/Recommendation: **Grand Junction:** Forward a recommendation to City Council to amend the Grand Junction Municipal Code, Title 31 Comprehensive Plan by adding Section 31.12 Wireless Master Plan **Mesa County:** Approval of the Wireless Master Plan as an element of the Mesa County Master Plan
Presenter(s) Name & Title: David Thornton, Principal Planner, Grand Junction Kaye Simonson, Lead Planner, Mesa County

Executive Summary:

Grand Junction's proposed ordinance amends Title 31, of Volume III: Comprehensive Plan of the Grand Junction Municipal Code (GJMC). Mesa County's adoption amends the Mesa County Master Plan. The purpose of the amendment is to adopt the Wireless Master Plan (WMP) as an element of the Comprehensive Plan. The WMP provides a short history on wireless telecommunications technology, an overview on network deployment practices, an inventory of existing wireless infrastructure throughout the City and County, theoretical propagation mapping, ten-year projection maps of potential future network deployment patterns, and recommendations for meeting future network deployment objectives over the next ten to fifteen years.

Background, Analysis and Options:

Wireless connectivity has become an increasingly important part of our everyday lives. Cell phones used to be just a way of making a phone call when you were away from home or work. Now we use smart phones and tablets to shop, find restaurants, compare prices, buy movie tickets, bank, navigate, and to stay in touch through social media sites. First responders throughout Mesa County rely more and more on cellular data communication in the field, as do 911 callers in an emergency situation.

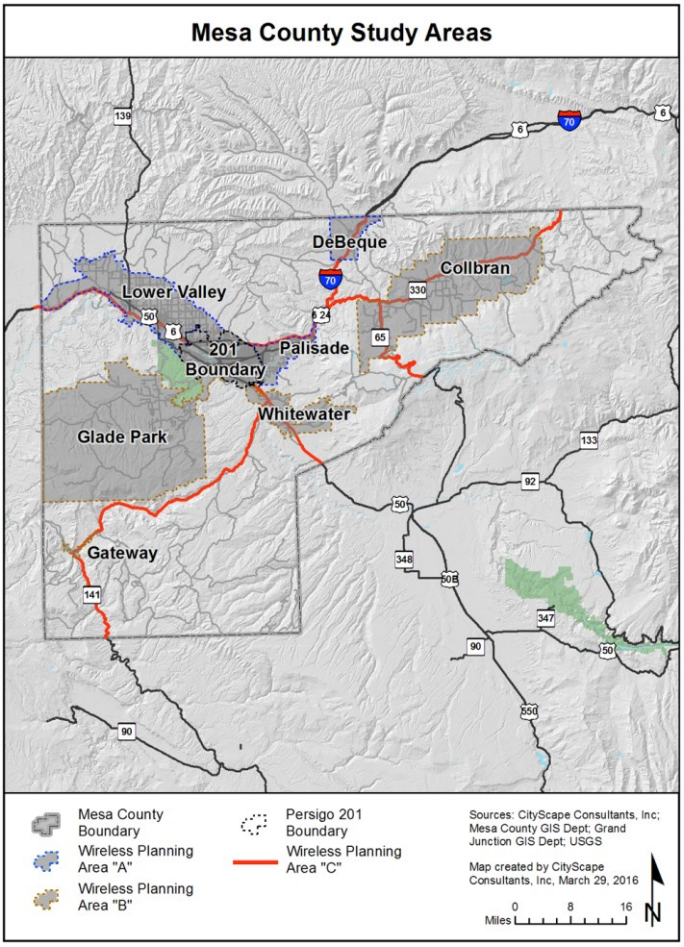
In response to the growing dependence on cellular technology, more and more communities are preparing Wireless Master Plans (WMPs) to help guide the development and construction of wireless infrastructure. The purpose of the WMP is similar to the goals and objectives of other long-range infrastructure plans, such as roadway improvements and the extension of water and sewer lines. The master plan for wireless

facilities sites combines land-use planning strategies with radio frequency engineering models to create an illustrative planning tool that will help manage the development of future sites in conformance with federal, state, and local regulations and City and County zoning requirements. The plan also includes strategies to reduce cell tower infrastructure proliferation by promoting collocation wireless deployment opportunities for service providers.

The benefits of a WMP are multi-faceted, addressing community, economic development, and planning needs, as well as emergency service provider requirements. A comprehensive approach to wireless development will align the needs of personal wireless service providers and broadband service providers with optimal infrastructure solutions that will support government and community objectives, allowing for infrastructure planning and development that will accommodate multiple providers, improve public safety and help to attract and retain residents and businesses.

The City of Grand Junction and Mesa County, on behalf of the Grand Junction Regional Communication Center (GJRCC), entered into an agreement with CityScape Consultants in May, 2015 to develop a County-wide WMP. The consultant used a three-step process to evaluate wireless coverage and develop a plan:

1. Identify, assess, catalogue and map exiting transmission equipment; and
2. Design an engineered search radii template and apply it over the jurisdictional boundary of the cities and County to evaluate theoretical build-out conditions; and
3. Forecast future infrastructure needs based on the status of the existing deployments, population trends, and network coverage gaps.



Nine study areas were identified across the County and detailed analysis was completed for each area creating, in effect, nine mini WMPs:

1. City of Grand Junction (Persigo 201 Boundary area)

<u>Area A</u>

2. Lower Valley
3. Palisade
4. DeBeque

Area B

5. Glade Park
6. Gateway
7. Whitewater
8. Collbran

Area C

9. Highway Corridor Areas (I-70, Highway 50, Highway 330, Highway 65 and Highway 141)

Theoretical composite propagation modeling was used to examine the potential coverage of all antenna locations. GIS mapping techniques were used to factor in terrain, vegetative cover, and population density to illustrate the theoretically expected level of cellular coverage provided from existing tower sites. Each site was visited and geo-located for mapping purposes. The tower type and ownership was determined, the tower and equipment were photographed and measured, and an assessment was made of the site's potential for supporting cellular services. Adding in expected changes related to technology improvements and population growth, CityScape was able to estimate future infrastructure needs in each study area.

Types of Local Cellular Facilities

Nonconcealed Facilities

Flag Pole

Faux Louvers

Concealed Facilities

Due to the concentration of population and urban characteristics of the City of Grand Junction, CityScape estimates that the largest number of new sites constructed over the next ten to fifteen years will be built in and around the Persigo 201 Study Area. Approximately 11-18 new towers or base stations will be needed to fill in the anticipated coverage gaps. These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement through the study area, and the number of calls a site can service at any given time. (See table on following page.) The projections consider coverage, capacity, and broadband network objectives, and take into consideration terrain, population, and proposed maximum infrastructure height variables. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location and/or replacement opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period. It should also be noted that even with this increase in new facilities, some areas within the study area will still be underserved due to the terrain and rural characteristics around the periphery of the study area.
County-wide:

CityScape estimates that five to eight co-locations, upgrades or antenna modifications (in any combination) per year can be anticipated over the next ten years. Over the next ten to fifteen years, up to forty new tower or base station sites will be needed county-wide to fill coverage gaps and/or increase capacity. The more populated areas of the County will likely see the development of “small cell” sites that consist of multiple concealed antennas located relatively close together on shorter towers or existing support structures like light and utility poles. Rural areas are more likely to be served by towers that can provide coverage over larger geographic areas.

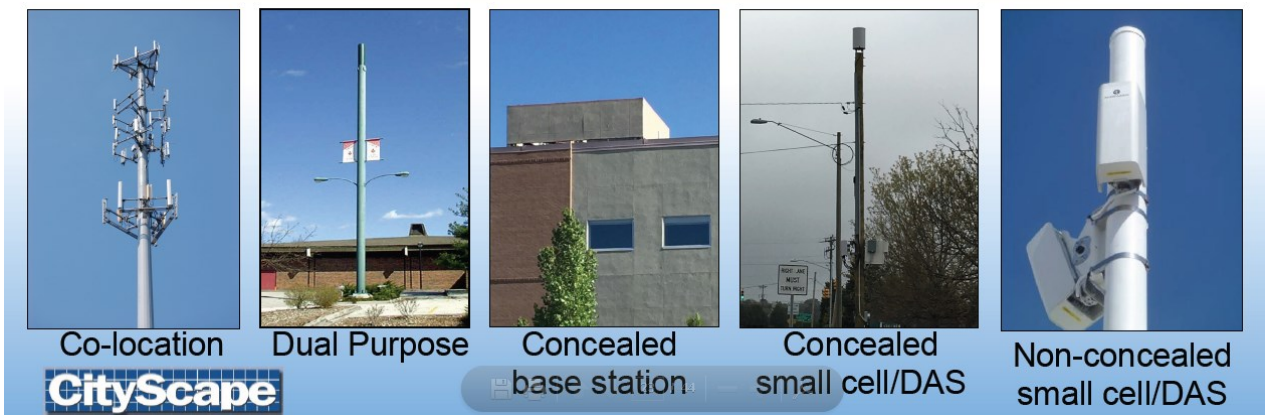
The following table identifies the number of sites that are located within each study area, plus sites within 1.5 miles that may also provide coverage. “Projected coverage, while estimated build-out indicates the number that more realistically are expected to be built. Fill-In indicates the number of additional sites that would be needed to provide maximum coverage, while estimated build-out indicates the number that more realistically are expected to be built.

Inventory Analysis by Study Area:

Study Area	Existing Sites (In)	(Out*)	Projected Fill-In (10-15 Years)	Estimated Build Out (Including public safety)
City of Grand Junction/ 201 Boundary	50	5	11-18	11-18
Lower Valley	10	11	7	4
Palisade	4	8	6	6
DeBeque	2	0	3	1-3
Glade Park	0	29	9	1-4
Gateway	0	3	3	1
Whitewater	5	1	4	2-4
Collbran	4	39	15	2-4

Wireless Master Plan Implementation:

The Wireless Master Plan is intended to balance the goals of providing good wireless network services throughout the defined study areas while minimizing the visual impacts of the telecommunications infrastructure. It is an illustrative planning tool and guide for developing planning policies for future wireless communications infrastructure. It includes a framework for maximizing network coverage while minimizing the future number of new telecommunication facilities; and provides suggestions for design standards that will guide decisions about the siting of future communication facilities.
Actual preferences for siting and type of facility will be contained within the respective development codes when amended. Generally the preference is to collocate on existing structures before adding new facilities.



As part of the planning process, CityScape reviewed existing City and County ordinances related to telecommunications facilities and provided recommendations for changes that incorporated recent Federal Communication Commission (FCC) regulation changes. They also suggested changes designed to encourage and effectively manage the development of needed PWSF collocations and new sites.

The draft Wireless Master Plan and proposed City of Grand Junction ordinance changes were presented for public comment at a County-wide meeting held on April 5, 2016. Input from that meeting has been incorporated and the plan is now being presented to the Planning Commissions for both the City of Grand Junction and Mesa County for review and consideration. The proposed ordinance changes to the City of Grand Junction development code is being presented only to the City of Grand Junction Planning Commission for review. Mesa County will consider an amendment to their Land Development Code at a later date.

Chapter 4 of the Plan lists the following actions that will implement the Plan and help meet the future network objectives. These include:

1) Maintain the wireless facilities inventory, updating it as facilities are added or modified, and make it available to the public on-line through the City and County websites.

2) Prepare amendments to the City and County development codes that update zoning requirements and review procedures for wireless telecommunications facilities to make the codes compliant with current FCC regulations.

    a. Update the development codes as needed when regulations change.

3) Maintain a Priority Site List, identifying properties that are both publicly and privately owned, that meet the criteria established for preferred cellular facilities. Properties that are on the Priority Site List may be eligible for expedited administrative review of wireless facilities, provided the proposed facility meets the concealment requirements identified at the time of inclusion on the Priority List, and all other applicable standards of the development code. The criteria for Priority Sites are:

    a. The property shall be located within the Grand Junction Persigo 201 Boundary or can be included in the Grand Junction Persigo 201 Boundary.
    b. The property shall be one acre minimum in lot size.
    c. The property shall have vehicular access to an improved public right-of-way.
    d. The property shall have access to utilities.
    e. The property shall be outside the 100 year flood plain.
    f. The cellular facility shall meet all City development standards and be subject to all regulations of the zoning code.
    g. Concealment is required and the owner of the property must identify the type of concealment proposed, prior to inclusion on the Priority Site list, with the understanding that if accepted by the City, then any type of concealment aside from what is proposed and accepted at the time of the Master Plan vetting process would require a conditional use permit (CUP).

4) Seek out public/private partnerships to encourage the development of wireless facilities in rural areas that are underserved and have significant coverage gaps.

5) Where feasible, plan for the ability to collocate private wireless facilities on public safety communication infrastructure, in order to fill coverage gaps and provide better service to residents.

6) Encourage the development of broadband infrastructure that will help support the development of wireless infrastructure.

7) Work with economic development partners to seek out opportunities to expand wireless telecommunication facilities to support business development.

8) Maintain awareness of evolving concealment options so the design and planning processes of new towers will blend visually within the community they serve.

Twelve City-owned "Priority Sites" and five other non-City owned sites were identified during the planning process as sites that can serve as "fill-in" sites for network gaps in cellular infrastructure. The City invited other public and private property owners to submit their land as potential priority site locations provided that the properties met the same criteria (see 3 above) as the City-owned priority sites. There were five properties submitted and accepted, which can be found on Table 8 of Chapter 3 in the Plan. Property owned by public entities other than the City are also included in the tables in each study area as potential sites, but owners have not requested inclusion on the priority list or indicated a preferred type of facility if included. Therefore, the facility type is "not determined." Additionally, the expedited processing for sites on the Priority List is intended to apply only to properties under the jurisdiction of the City of Grand Junction. While Mesa County does not intend to offer that benefit at this time, the public-owned sites are still listed in the respective tables for each study area so providers can easily find properties that might be suited for facilities.

City of Grand Junction Comprehensive Plan Amendment Criteria:

21.02.130 Comprehensive Plan amendment (CPA).
(a) Purpose. In order to maintain internal consistency within the Comprehensive Plan, administrative changes and proposed amendments to the Comprehensive Plan must be consistent with the vision (intent), goals and policies included in the Plan.
(b) Applicability. All proposed amendments to the text of the Comprehensive Plan shall comply with the provisions of this section. Any proposed development that is inconsistent with any goals or policies of the Comprehensive Plan shall first receive approval of a Comprehensive Plan amendment. The Comprehensive Plan shall include all neighborhood plans, corridor plans, area plans, the Grand Valley Circulation Plan, the Urban Trails Master Plan, and all other elements adopted as a part of the Comprehensive Plan.

(c) Criteria for Plan Amendments.

(1) The City may amend the Comprehensive Plan, neighborhood plans, corridor plans and area plans if the proposed change is consistent with the vision (intent), goals and policies of the Comprehensive Plan and:

(i) Subsequent events have invalidated the original premises and findings; and/or
This Criterion **is not applicable**.

(ii) The character and/or conditions of the area has changed such that the amendment is consistent with the Plan; and/or
Changes to technology have resulted in an increased demand for wireless facilities. Add to that the changing regulatory landscape (FCC), and the amendment to the plan is needed. This criterion **is met**.

(iii) Public and community facilities are adequate to serve the type and scope of land use proposed; and/or
The entire purpose of this plan is to ensure that public and community facilities will be adequate. This Criterion **is met**.

(iv) An inadequate supply of suitably designated land is available in the community, as defined by the presiding body, to accommodate the proposed land use; and/or
The WMP is intended to identify where facilities will be needed, and ensure that there is a supply of available land. This Criterion **is met**.

(v) The community or area, as defined by the presiding body, will derive benefits from the proposed amendment.
This Criterion **is met**. The Grand Junction Community will receive the following benefits by adopting the Wireless Master Plan as an element (amendment) of the Comprehensive Plan.

- The Plan incorporates the needs and requirements of all segments of the telecommunication/radio community including local governments, public safety, businesses, cellular service providers and users, and wireless broadband providers to ensure that a tower built for one purpose may support other services in the same area.
- The Plan makes the telecommunication industry aware that the local governments and communities are supportive of responsible growth in our area and provides ways to streamline the development process of new sites that meet community needs.
- The Master Plan balances the goals of providing good cell phone service with minimizing impacts from telecommunication facilities on neighborhoods and the community by anticipating where tower sites will be needed and planning for well-sited, well-designed, and inconspicuous telecommunication facilities that fit within the community.

- The Plan serves as a guide for providers and tower companies looking to increase network capacity and coverage by helping them locate potential
- properties that the community has determined are appropriate for tower sites.
- The Plan and related ordinances provide service providers, tower owners and planning organizations with information about community preferences to assist with the design and planning processes and ensure that new structures fit within the community they serve.
- Improving wireless cellular coverage to underserved areas is a key objective of the City's Economic Development Plan.

Mesa County Master Plan Amendment Criteria:

Section 3.2.8, Approval Criteria, of the Land Development Code states that the Planning Commission may approve proposed Master Plan amendments only if it is determined that the proposed amendment is consistent with the overall purpose and intent of the Mesa County Master Plan and with any intergovernmental agreements then in effect between the County and any other unit of government and only after consideration of each of the following criteria:

(Consistency with the overall purpose and intent of the Mesa County Master Plan is discussed in approval criteria D below and intergovernmental agreements are addressed in approval criteria 3.1.17.C below.)

A. There was an error in the original Master Plan such that then-existing facts, projects, or trends (that were reasonably foreseeable) were not accounted for.

There are no errors in the Mesa County Master Plan.

This criterion **is not applicable.**

B. Events subsequent to the adoption of the Master Plan have invalidated the original premises and findings.

Many components of the Master Plan predate advances in wireless technology. As such, the provision of what has become an important basic service to residents, businesses and visitors is generally not addressed in the Plan. The Wireless Master Plan provides guidance on the siting of facilities, as well as land use review consistent with FCC regulations, which have changed in recent years.

This criterion **is met.**

C. The character and/or condition of the area has changed enough that the amendment is acceptable.

The need for wireless communication infrastructure has increased and will only grow in the future. Wireless technology has become essential to everyday life. The Wireless

Master Plan documents how technology deployment has occurred in recent years and identifies how it will grow and change over the next 10-15 years.

This criterion **is met.**

D. The change is consistent with the goals and policies of the Master Plan, including applicable special area, neighborhood, and corridor plans.

The need for wireless infrastructure is cited in the 2012 Mesa/Powderhorn Plan and in the 2014 Glade Park Plan, as follows:

Mesa/Powderhorn Plan:
Services 3.D: Telecommunications providers shall be encouraged to expand and upgrade infrastructure in order to improve accessibility to cell phone service and to provide reliable and fast internet.

Economic Development 1.B: Encourage telecommunication companies to improve infrastructure for wireless and internet, to support business development.

Glade Park Plan:
Services 1.H (Goal for Adequate Public Safety): Support efforts to improve coverage and reliability of internet and wireless communications infrastructure.

This criterion **is met.**

Public and community facilities are adequate to serve the type and scope of land use proposed.

Wireless telecommunications are now considered an essential service, on par with water, sewer and electricity. As such, it is necessary to plan for facilities that will meet the public's needs, in the same manner as one would plan for utilities. The Wireless Master Plan identifies areas that currently have coverage, where coverage gaps exist, and where facilities are expected to be needed over the next 10-15 years in order to provide coverage to a growing population and meet the demands of evolving technology. Implementation of the Wireless Master Plan will assure continued adequacy of services.

This criterion **is met.**

F. An inadequate supply of suitably designated land is available in the community, as defined by the presiding body, to accommodate the proposed land use.

Prior to the development of the Wireless Master Plan, the true scope and need for facilities was not known, and the development standards of the Land Development Code may have inhibited the establishment of wireless facilities. The Wireless Master Plan shows the general location and number of facilities that will need to be provided in the next 10-15 years. Constraints are noted for some areas, such as terrain, and certain areas may lack the necessary user population that service providers desire. The implementation actions identify ways in which wireless infrastructure can be developed to meet the projected needs, through partnerships on specific sites or through land use regulations that remove barriers to deployment.

This criterion **is met.**

G. The community or area, as defined by the presiding body, will derive benefits from the proposed amendment.

Residents, businesses, and visitors will all benefit from improved wireless communication infrastructure in a number of ways:

- The Plan incorporates the needs and requirements of all segments of the telecommunication/radio community including local governments, public safety, businesses, cellular service providers and users, and wireless broadband providers to ensure that a tower built for one purpose may support other services in the same area.
- The Plan makes the telecommunication industry aware that the local governments and communities are supportive of responsible growth in our area and provides ways to streamline the development process of new sites that meet community needs.
- The Master Plan balances the goals of providing good cell phone service with minimizing impacts from telecommunication facilities on neighborhoods and the community by anticipating where tower sites will be needed and planning for well-sited, well-designed, and inconspicuous telecommunication facilities that fit within the community.
- The Plan serves as a guide for providers and tower companies looking to increase network capacity and coverage by helping them locate potential properties that the community has determined are appropriate for tower sites.
- The Plan and related ordinances provide service providers, tower owners and planning organizations with information about community preferences to assist with the design and planning processes and ensure that new structures fit within the community they serve.

This criterion **is met.**

The Planning Commission must also consider the general approval criteria of Section 3.1.17:

A. Complies with the standards, provisions and purposes of the Land Development Code.

The Wireless Master Plan is consistent with the purpose of the Land Development Code in that it implements the Mesa County Master Plan. The Plan provides guidance on updating the Land Development Code so it meets the requirements of current FCC regulations.

This criterion **is met.**

B. Is consistent with review agency comments.

Review agency comments are discussed below and are attached.

This criterion **is met.**

C. Is consistent with applicable intergovernmental agreements (IGAs) between the County and other entities.

All agencies with which Mesa County has relevant IGAs and MOUs were provided the opportunity to comment on the proposed Plan. The proposed Plan is consistent with all applicable IGAs and MOUs.

This criterion **is met.**

How this item relates to the Grand Junction Comprehensive Plan Goals and Policies:

Goal 11: Public facilities and services for our citizens will be a priority in planning for growth.

Policy A: The City and County will plan for locations…to serve the public health, safety and welfare, and to meet the needs of existing and future growth.

The Wireless Master Plan includes a framework for maximizing network coverage while minimizing the future number of new telecommunication facilities and locations, and provides design standards that will guide decisions about the siting of future communication facilities throughout the community.

How this item relates to the Mesa County Master Plan:

Mesa/Powderhorn Plan:
SVC 3.D: Telecommunications providers shall be encouraged to expand and upgrade infrastructure in order to improve accessibility to cell phone service and to provide reliable and fast internet.

ED 1.B: Encourage telecommunication companies to improve infrastructure for wireless and internet, to support business development.

Glade Park Plan:
SVC 1.H (Goal for Adequate Public Safety): Support efforts to improve coverage and reliability of internet and wireless communications infrastructure.

The Wireless Master Plan addresses these specific Plan areas and identifies strategies by which rural areas might be better served by wireless companies.

How this item relates to the Grand Junction Economic Development Plan:

In May of 2014, the Grand Junction City Council adopted a three to five years Economic Development Plan (EDP) for the purpose of creating a clear plan of action for improving business conditions and attracting and retaining employers. **Section 1.4** of the EDP focuses on providing technology infrastructure that enables and supports private investment. Expanding broadband capabilities and improving wireless and/or cell coverage to underserved areas are key objectives of the EDP. The City has determined that the development of a Wireless Master Plan (WMP) for eventual inclusion in the City's Comprehensive Plan would be a positive step toward accomplishing those objectives.

Review Agency Comments:
The draft Wireless Master Plan was sent to Review Agencies who are either service providers with an interest in improved wireless communication, or who manage lands that might be available for siting of facilities. As of the writing of this report, no substantive comments have been received. A number of agencies have been involved throughout the process, notably in the public safety sector. Their input has been incorporated into the Plan.

Public Comments:
The public has been invited to participate via four public meetings held on June 30, 2015, August 26, 2015, December 7, 2015 and the latest held on April 5, 2016. All meetings were recorded and made available on the City website for review, along with presentation materials and are archived on the Wireless Master Plan website, http://www.gjcity.org/WirelessMasterPlan.aspx. The draft Wireless Master Plan, Facility Inventory, and meeting presentations are all on-line. Several surveys were conducted to determine community preferences for tower types, use of public property, and priorities for the development of new sites. The results of that survey were incorporated into the Wireless Master Plan. Issues raised during the community meetings were incorporated into the Plan, where appropriate, and CityScape met with some wireless providers and tower owners. Council updates and Planning Commission updates have occurred regularly throughout the project. A contact list consisting of more than 200 community leaders, businesses, tower builders, cellular service providers, and citizens has been used to disseminate information about the planning process and to invite interested parties to attend the public meetings.

REVIEW AGENCY COMMENTS:

PRO2016-0049 - WIRELESS MASTER PLAN Review Agency Comments
Comments Due Date: 2016-04-12

User	Review Agency	Date/Time	Comment
Shirley Beall	MC PROPERTY AGENT	3/31/2016 7:41:41 AM	No Comments. Shirley
FIRE MARSHALL FRUITA	FIRE LOWER VALLEY	3/31/2016 10:31:55 AM	No comments.
MARK HARRIS	IRR GV WATER USERS	4/5/2016 7:34:11 AM	GVWUA has no comments.
CHRIS ROWLAND	FIRE CLIFTON	4/8/2016 8:17:43 AM	No comments
MARK BARSLUND	IRR 5-2-1 DRAIN AUTH	4/12/2016 8:59:48 AM	Any disturbance of one acre or more will require both a 521 and C.D.P.H.E. stormwater permit

GRAND JUNCTION PLANNING COMMISSION:

Board or Committee Recommendation:

The Planning Commission will make recommendation to the City Council on April 26, 2016.

Financial Impact/Budget:

There will not be a financial impact.

Legal issues:

The City Attorney has reviewed and approved the form of the ordinance.

Other issues:

No other issues have been identified.

Previously presented or discussed:

The planning process and discussion of the Wireless Master Plan has followed this time-line:

- Council Workshop to review Wireless Master Plan Proposal - 7/21/2014
- Council Retreat - 1/16/2015
- Council Workshop - 1/19/2015
- Council Approves Contract with Cityscape - 5/20/2015
- Kick Off Meeting - 6/30/2015
- Stakeholder/Public Comment Meeting - 8/26/2015
- Joint Planning Commission Meeting - 10/14/2015 (City PC Workshop - 12/7/2015)
- Stakeholder/Public Meeting - 12/7/2015
- WMP Survey - Community Preferences - Tower Types / Use of Public Property - 12/2015
- Council Workshop 1/18/2016
- Stakeholder/Public Meeting - 4/5/2016
- Mesa County Planning Commission Workshop – 4/12/2016
- Grand Junction Planning Commission Workshop – 4/21/2016
- Joint City/County Planning Commission Meeting - 4/26/2016
- City Council to consider adoption of WMP and related ordinance changes - 6/1/2016

STAFF RECOMMENDATION:

I recommend that the Planning Commission approve the requested Amendments to the Grand Junction Municipal Code, Title 31, Comprehensive Plan by adding Section 31.12 Wireless Master Plan, CPA-2016-113.

RECOMMENDED GRAND JUNCTION PLANNING COMMISSION MOTION:

Madam Chairman, on the request to forward a recommendation to City Council to amend the Grand Junction Municipal Code, Title 31, Comprehensive Plan by adding Section 31.12 Wireless Master Plan, I move that the Planning Commission approve it as presented in the Staff Report.

MESA COUNTY PLANNING COMMISSION:

Staff recommends approval of the Wireless Master Plan. Adoption of the resolution will be held until after the City of Grand Junction City Council completes adoption of the Plan.

Basis:

Adopting the Wireless Master Plan **does meet** a majority of the applicable approval criteria found in Section 3.2.8 and Section 3.1.17 of the Mesa County Land Development Code.

Summary

Master Plan Amendment Approval Criteria	
3.2.8.A (error in original Master Plan)	**N/A**
3.2.8.B (events invalidate original premises and findings)	**is met**
3.2.8.C (change in character or condition of the area)	**is met**
3.2.8.D (consistent with goals and policies of the Master Plan)	**is met**
3.2.8.E (adequate public and community facilities)	**is met**
3.2.8.F (inadequate supply of suitably designated land)	**is met**
3.2.8.G (benefits to the community)	**is met**
General Approval Criteria	
3.1.17.A (complies with Land Development Code)	**is met**
3.1.17.B (consistent with review comments)	**is met**
3.1.17.C (consistent with IGAs)	**is met**

Attachments:

- City of Grand Junction Ordinance
- Proposed Wireless Master Plan

CITY OF GRAND JUNCTION, COLORADO

ORDINANCE NO. _____

AN ORDINANCE ADOPTING THE WIRELESS MASTER PLAN

AS AN ELEMENT OF THE GRAND JUNCTION COMPREHENSIVE PLAN
AMENDING TITLE 31 COMPRENHENSIVE PLAN BY ADDING SECTION 31.12

Recitals.

The City has also commissioned a broadband planning effort in both wireless planning and broadband planning that includes a Wireless Master Plan (Plan). The Plan is the result of a joint planning effort by the City of Grand Junction and Mesa County with the help of CityScape, a company commissioned by the City and County that specializes in wireless infrastructure planning. It builds upon the 2010 Grand Junction Comprehensive Plan adopted by Mesa County and the City of Grand Junction.

The planning effort was undertaken in response to the technology goals identified in the Economic Development Plan adopted on May 7, 2014. The contract was signed with CityScape Consultants on May 27, 2015 and work commenced immediately thereafter. The consulting costs are being funded by the Grand Junction Regional Communication Center (GJRCC) and the project team includes representatives from City Planning, Purchasing, Legal and IT, County Planning and IT, the GJRCC, and CityScape Consultants. The public has been invited to participate via four public meetings held on June 30, 2015, August 26, 2015, December 7, 2015 and the latest held on April 5, 2016. All meetings were recorded and made available on the City website for review, along with presentation materials. Several surveys were conducted to determine community preferences for tower types, use of public property, and priorities for the development of new sites. Council updates and Planning Commission updates have occurred regularly throughout the project. A contact list consisting of more than 200 community leaders, businesses, tower builders, cellular service providers, and citizens has been used to disseminate information about the planning process and to invite interested parties to attend the public meetings.

The Wireless Master Plan will provide long-term planning for an efficient and capable wireless telecommunication environment in the community, so that existing and new telecommunications infrastructure can be optimally utilized to meet the current and future wireless communication needs of the City's industry, businesses, residents and visitors while minimizing negative aesthetic impacts so as to preserve the character of the community and its natural surroundings.

The City Council finds that it is necessary and beneficial for the health, safety and welfare of the community to adopt this Plan for development of telecommunications facilities in the City in order to:

- promote the health, safety, and welfare of the public;

- establish the need for community preferences;
- establish a community vision for telecommunications facilities including where they could most optimally be placed and preferences for aesthetics;
- encourage co-location of equipment on existing structures in order to minimize redundant and unnecessary proliferation of new towers, thereby minimizing visual clutter, public safety impacts, and effects upon the natural environment and wildlife;
- identify the most likely coverage gaps and assist the industry and property owners with locating towers in the most optimal manner;
- acknowledge the growing need and demand for telecommunications services while recognizing the need to protect the character of the City and its neighborhoods;
- identify and plan for the availability cellular telephone access for businesses and residents, acknowledging that a growing number of businesses are conducted in whole or in part from on-the-go, and that government participation and emergency services to the general public are enhanced by fast and reliable cellular connectivity;
- recognize the need for coordination between suppliers and providers of telecommunications services to maximize use of existing facilities and structures;
- promote concealed technologies and the use of public lands, buildings, and structures as locations for facilities;

The Planning Commission is charged with reviewing the Plan and making a recommendation to City Council.

The Wireless Master Plan was heard by the Grand Junction Planning Commission in a public hearing jointly with Mesa County Planning Commission on April 26, 2016.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GRAND JUNCTION:

That the Wireless Plan, in the form of the document attached hereto, and as recommended for adoption by the Grand Junction Planning Commission, is hereby adopted.

The full text of this Ordinance, including the text of the Wireless Master Plan, in accordance with paragraph 51 of the Charter of the City of Grand Junction, shall be published in pamphlet form with notice published in accordance with the Charter.

INTRODUCED on first reading the _____ day of _____, 2016 and ordered published in pamphlet form.

PASSED and **ADOPTED** on second reading the ____ day of _____, 2016 and ordered published in pamphlet form.

_____
Phyllis Norris
President of City Council

ATTEST:

_____
Stephanie Tuin
City Clerk

City of Grand Junction & Mesa County
Draft Wireless Master Plan

Adopted• TBD

4/14/16 - FINAL DRAFT

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Acknowledgements

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Preface

Purpose

The following is an excerpt from the Request For Proposal (RFP-3890-14-NJ):

> "In May of 2014, the Grand Junction City Council adopted a three to five years Economic Development Plan (EDP) for the purpose of creating a clear plan of action for improving business conditions and attracting and retaining employers. Section 1.4 of the EDP focuses on providing technology infrastructure that enables and supports private investment. Expanding broadband capabilities and improving wireless and/or cell coverage to underserved areas are key objectives of the EDP. The City has determined that the development of a Wireless Telecommunications Master Plan (WTMP) for eventual inclusion in the City's Comprehensive Plan would be a positive step toward accomplishing those objectives."

A request for proposal (RFP) was issued by the City of Grand Junction and Mesa County which specifies several geographic study areas of interest for the WTMP.

> "The goal of the WTMP is to facilitate the creation of an optimized wireless telecommunications environment that is efficient, capable, and meets the long-term forecasted user requirements of the businesses, residents and visitors in the City of Grand Junction and Mesa County."

CityScape Consultants, Inc. (CityScape) was awarded the contract to develop a WTMP (hereafter referred to as a Wireless Master Plan or WMP) for the City of Grand Junction (City), Mesa County (County) and the Grand Junction Regional Communication Center (GJRCC). The WMP will serve as a general planning tool for the City, County and GJRCC. CityScape works exclusively for public agencies to address these identified concerns. CityScape specializes in developing land use strategies to control the proliferation of wireless infrastructure, affording the maximum control for local governments, while maintaining compliance with State Statutes, the Telecommunications Act of 1996, Middle Class Tax Relief and Job Creation Act of 2012 and subsequent federal regulations.

The WMP is intended to balance the goals of providing good wireless network services throughout the defined study areas while minimizing the visual impacts of the telecommunications infrastructure. It is an illustrative planning tool and guide for developing planning policies for future wireless communications infrastructure. The WMP includes a framework for maximizing network coverage while minimizing the future number of new telecommunication facilities; and suggestions for design standards that will guide decisions about the siting of future communication facilities.

The WMP provides a short history on wireless telecommunications technology, an overview on network deployment practices, an inventory of existing wireless infrastructure throughout the City and County, theoretical propagation mapping, ten-year projection maps of potential future network deployment patterns and recommendations for meeting future network deployment objectives over the next ten to fifteen years.

WMP Study Areas and Tasks

There are nine geographic regions identified as study areas:

- The City of Grand Junction (the 201 Service Boundary was used to approximate the boundaries of the City because of the irregular boundary created by noncontiguous annexations of property into the City limits)
- Study Area A: City of Fruita (Lower Valley), Town of Palisade, Town of DeBeque
- Study Area B: Glade Park, Gateway, Whitewater, Town of Collbran
- Study Area C: Corridors (Interstate-70 and Highway 50)

The scope of services includes the following six tasks:

- Task A: Preliminary research and data assessments.
- Task B: Infrastructure assessments; kick-off meeting; and theoretical root mean square (RMS) mapping.
- Task C: Theoretical propagation mapping based on participant responses at kick-off meeting.
- Task D: Design and development of draft master plan; draft ordinance review and amendment recommendations; and technical meeting.
- Task E: Public meetings and presentations of draft documents.
- Task F: Final documents.

Chapter 1

The Telecommunications Industry

Chapter 1: The Telecommunications Industry

Introduction

Telecommunications is the transmission and/or reception of radio signals, whether it is in the form of voice communications, data, digital images, sound bites or other information, via wires or space on radio frequencies, using satellites, microwaves, or other electromagnetic systems. Telecommunications includes the transmission of voice, video, data, broadband, wireless and satellite technologies and others.

Traditional land line telephone service utilized an extensive network of copper lines to transmit and receive a phone call between parties. As the communications industry evolved, modified copper wire circuit or T-carriers (T-1) lines were developed to add capacity, bandwidth and speed to the standard copper wire line. However, copper-based technology, in any form, is insufficient to support the ever increasing service demands. With today's technology, the only methods available to achieve the necessary bandwidth and speed for data transfer is to utilize fiber optic or microwave technology for backhaul. Backhaul is the network interconnection that links individual network nodes together through the core network backbone. The lack of fiber or microwave currently is a limiting factor for true high-speed telecommunications.

Wireless telephony, also known as wireless communications, includes mobile phones, pagers, and two-way enhanced radio systems. It relies on the combination of land lines, cable and an extensive network of elevated antennas – most typically found on communication towers – to transmit voice and data information. The evolution of this technology has progressed through advances referred to as first, second, third and fourth generations (1G through 4G) of wireless deployment. Fifth generation (5G) wireless is expected to exponentially expand wireless network capacity by incorporating new transmission technologies and a wide range of frequency spectrum between 600 megahertz (MHz) and 24 gigahertz (GHz). Advanced technologies with 5G will result in much quicker download speeds for smartphones and other smart devices, and machine-to-machine (M2M) data transmission between automotive vehicles and between pieces of equipment in industries such as transportation and logistics, home health care, manufacturing and public safety.


1G, 1984 Mobria Cell Phone
(Image: J Bundy)

Wireless Handset Evolution

During the early 1980's, the first generation, consisting of 850 megahertz (MHz) band cellular systems, was launched nationwide. The 1G portable cell phones were boxy in shape and operated much like a small AM or FM radio station. The 850 MHz frequency (i.e., low band) allows the radio signal from the antenna on the tower to travel beyond five miles, depending on topography and line-of-sight conditions between the towers. Customers using a cell phone knew when they traveled outside of the service area because they would hear a static sound on the phone similar to the sound of a weak AM or FM radio station. The signal either faded or remained crackling until the subscriber was within range of another facility.

Originally, the 850 MHz band only supported an analog radio signal. By 2010, 1G had been phased out of network design in most urban markets, but still serves as a platform of initial coverage in

remote and undeveloped areas -- including large areas identified in Study Area B of Mesa County.

The 1990's marked the deployment of second generation technologies, consisting of the 1900 MHz band (i.e., high band) Personal Communication Systems (PCS) and Enhanced Specialized Mobile Radio (ESMR) commonly referred to as Nextel, that operated in the 800 MHz band. Nextel and 2G cellular wireless technology was developed primarily to allow for simultaneous phone calls over a digital signal, on both 850 and 1900 MHz, that were audibly clearer than those made with an analog signal. The handsets were much smaller than the 1G cellular phones and the first handsets provided low speed data services such as paging and limited text messaging through the handheld unit. However, 2G had some network functionality trade-offs. The technology offered a static free signal but with a higher rate of disconnects or dropped calls. The network solution to reduce the number and frequency of dropped calls required significantly more base stations and towers for several reasons: First, the propagation signal in the high band does not travel as far as the low band signal. Thus, the number of required base stations almost tripled just to provide basic 2G coverage in the same geographic area as a 1G service area. Second, the industry was reluctant to share tower space with a competitor and many service providers resisted co-locating on the same tower. And third, subscriber base and usage grew rapidly so the industry needed more sites to improve network coverage demands by their customers.

2G Phone (left)
4G Phone (right)
(Image: Answers.com)

Third generation (3G) wireless was launched in the early 2000's and offered improved mobile download speeds and increased penetration of signal strength for indoor environments. This technology also permits multi-media messaging (MMS) which increased the character limit on text messaging, allowed photo transfer and provided elementary video conferencing.

Fourth generation (4G) wireless handsets were introduced in 2010 and offered a wide variety of new tools and services that provided access to e-mail, news, music and videos. Newer technologies incorporated better cameras for still photos and video, global positioning services (GPS), Internet commerce, and millions of downloadable applications for just about any use.

Advancing technologies in 2015 resulted in new smartphones and tablets that support video streaming and remote access to internet based cloud data storage – both of which require large amounts of bandwidth. Service providers continue to upgrade existing networks by: 1) adding additional base stations and towers to improve and increase network capacity; 2) purchasing additional licenses in the 700, 1700-1800, and 2100-2400 MHz frequencies; 3) upgrading equipment at the towers and base stations and adding more antennas and feed lines; and 4) adding remote radio heads (RRH) on towers to increase signal strength and capacity.

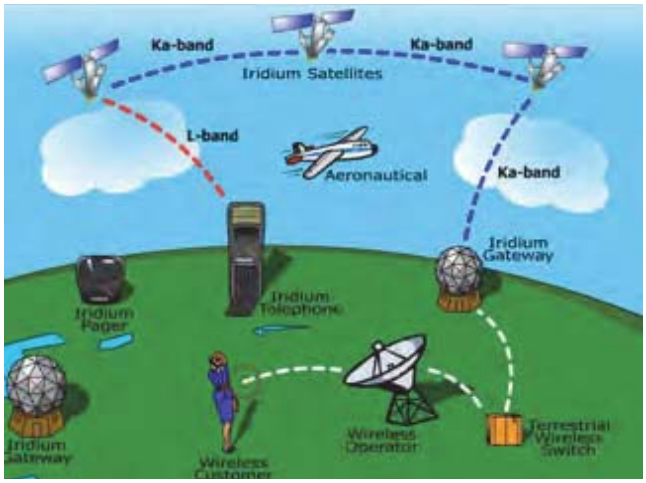
One of 4Gs greatest advancements is the transition to Long Term Evolution (LTE) services as the global cellular network operating standard. Network operating platforms nationally and internationally were fractured during the implementation of 3G networks because of the adoption of Time Division Multiple Access (TDMA) and Code Division Multiple Access (CDMA) as competing operating platforms. The universal LTE and LTE-Advanced platforms will promote efficient use of spectrum, faster download speeds and continued use of smart devices across the United States and throughout the world. The need for additional 4G infrastructure is significant nationwide and the continued deployment of new towers and base stations will be necessary as the

industry transitions to fifth generation (5G) networks sometime around 2019-2020.

In summary, 1G and 2G provided the initial launch of personal wireless service. Third generation improved data transfer with the addition of MMS, 4G increased speeds and capacity and 5G deployments will focus on implementation of full broadband service. Fourth generation network technology (the platform for Smartphones) emphasized improving network capacity and maximizing the use of bandwidth for faster and more efficient transfers of data. Fifth generation standards are in the design phase and will be implemented when gigahertz spectrum is available and backhaul systems utilizing fiber optic networks are available. The improved network speeds and bandwidth of 5G are anticipated to be sufficient to compete directly with computer networks with average internet download speeds at or above the 100 Megabits per second (Mbps) range. Fifth and sixth generation (5G and 6G) advancements over the next thirty years will allow all forms of communications and entertainment to be streamed resulting in the eventual elimination of digital subscriber lines (DSL) and cable/satellite TV; and will provide the underlying communication technology that will allow vehicles to drive themselves. Like all previous generations, 5G and 6G will require more wireless infrastructure.

Satellite Technologies

The growth of satellite usage has surpassed the highest expectations of only a few years ago. The reason is simply lower cost. Previously, relaying information, data, and other related materials was cumbersome and required many relay stations in very specific locations and in relatively close proximity. Initially satellite use was expensive because of the limited amount of airtime that was available. Satellite airtime has become more affordable with the deployment of additional satellites, increased competition and advanced technologies that allow more usage of the same amount of bandwidth. In addition, satellite service providers are in the early stages of increasing the number of localized networks which will contribute to the already rapid growth.



Iridium Satellite Routing System (Image: wcclp.com)

Several licensees of satellite services such as SiriusXM Radio and a number of satellite telephone service providers successfully petitioned the Federal Communications Commission (FCC) to allow deployment of additional land-based supplemental transmission relay stations so that they can compete more aggressively with existing ground based services and overcome the obstacles typical to satellite technology. Subscribers found the delay, fade and signal dropout between interactive devices to be unacceptable. Sirius XM Radio has been successful in obtaining ground based supplemental transmitter rights and has become one of the alternative subscribers of ground based transmitter networks.

Transmission Equipment

On May 18, 2015, the Federal Communication Commission (FCC) announced and published notice of "The Wireless Infrastructure Report and Order", which defines transmission equipment to be:

> "any equipment used in connection with any Commission-authorized wireless transmission, licensed or unlicensed, terrestrial or satellite including commercial mobile, private mobile, broadcast, and public safety services, as well as fixed wireless services such as microwave backhaul or fixed broadband." Wireless transmission equipment is comprised of four main apparatus: 1) an electronic equipment cabinet; 2) feed lines; 3) antenna or antenna array; and 4) an antenna support facility such as a tower or base station.

Equipment Cabinet and Feed Lines

Electronic equipment used to transmit and receive the radio signals from the antenna is installed within an equipment facility including, but not limited to: cabinets, shelters, pedestals or other similar enclosures. Copper coaxial cable (coax) or fiber optic (fiber) feed lines are used to connect the antenna with the ground based equipment. The equipment cabinets and feed lines shown in Figure 1 are typical for service providers operating in the high band frequencies and ground space requirements for this equipment is around ten square feet.

Figure 1: Example of High Band Wireless Infrastructure Ground Equipment

The electronics equipment used with low band systems generates substantial heat, so the shelters which house the ground equipment are much larger and generally need a minimum of four hundred (400) square feet. The only noise that would typically be generated in the vicinity of any tower or base station would be from an air conditioner or a backup generator that automatically starts in the event of a power failure. Figure 2 shows a typical configuration for low band ground equipment.

Antennas and Antenna Arrays

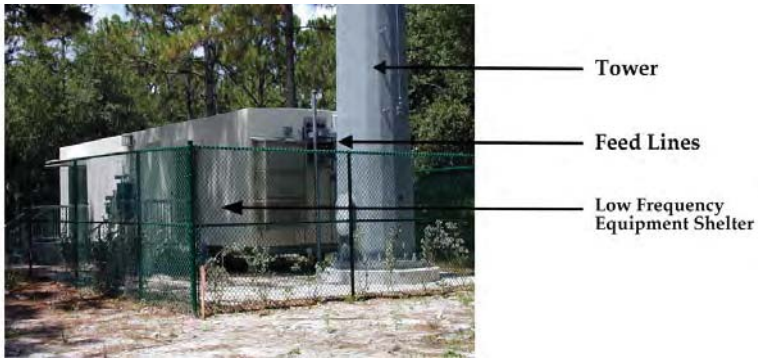


Figure 2: Example of Low Band Wireless Infrastructure Ground Equipment

Antennas are used for both transmitting and receiving signals. Examples as shown in Figure 3 include: a single omni-directional (whip) antenna that can be used to transmit and/or receive two-way radio, ESMR, cellular, Personal Communications Service (PCS), or Specialized Mobile Radio (SMR) signals. A sectionalized panel antenna array can be used for transmitting and receiving cellular, digital or ESMR wireless telecommunication signals. Each antenna or antenna array is connected to the ground equipment cabinet via a feed line.

Microwave dish antennas and fiber optics cable are used for backhaul. Backhaul is used by service providers to send the signal received by the antenna to the supporting network and vice versa. Point-to-point microwave antennas are used to provide backhaul capabilities over greater distances than are possible between the primary antennas on towers and base stations. Microwave is frequently used as backhaul throughout Mesa County to connect the towers in the urban areas like Grand Junction to towers in remote locations such as Gateway and Palisade Point.

Most service providers are now mounting a power amplifier unit on the tower close to the antenna. The top mounted amplifiers (TMA) and remote radio units (RRU) provide greater efficiencies and better service in both transmitting and receiving modes. However, these improvements come at the cost of higher visual impacts caused by the increased amount of tower mounted equipment mounted high on the towers.

Figure 3: Examples of Panel, Directional and Microwave Antennas

Transmission Equipment, Towers and Base Stations

Antennas can be mounted on a variety of structures referred to as wireless towers or base stations. As defined in the FCC Report and Order, a wireless tower is "a structure built for the sole or primary purpose of supporting any Commission-licensed or authorized antennas and their associated facilities". Examples of non-concealed towers are monopoles, lattice and guy towers and shown in Figure 4.

Self-Support Monopole Tower *Self-Support Lattice Tower* *Guy Tower*

Figure 4: Examples of Non-Concealed Antenna Support Facilities

As defined in the FCC Report and Order, a base station is "equipment and non-tower supporting structure at a fixed location that enable Commission-licensed or authorized wireless communications between user equipment and a communications network". Examples of base stations are buildings, water tanks, tall signage and light poles; provided that, 1) the structure is structurally capable of supporting the antenna and the feed lines; and, 2) there is sufficient ground space to accommodate the base station and accessory equipment used in operating the network. Examples of non-concealed base stations are shown in Figure 5.

Figure 5: Examples of Non-Concealed Base Stations

Concealment Options

Base stations and towers can be concealed. Antenna concealment techniques include faux dormers and chimneys, elevator shafts encasing the antenna feed lines and equipment cabinet, and painted antenna and feed lines to match the color of a building or structure. Example of base station concealment techniques are shown in Figure 6.

Figure 6: Examples of Antenna Concealment Techniques

A concealed tower is not readily identifiable as a wireless facility. In slick sticks, banners and flagpoles and three legged poles the antenna are covered by fiberglass shields; and on faux trees the monopole and antenna are painted and surrounded by faux branches. Partially concealed towers include modified braces and brackets on the lattice towers and painted monopoles. Dual purpose towers include light stanchions and poles added within an existing utility tower. Figure 7 provides examples of this type of concealed infrastructure.

CityScape conducted a WMP kick-off meeting on June 30, 2015 and participants were asked for feedback on their preference for different types of infrastructure. Participants voted on the type of infrastructure they preferred to see in both rural and urban areas. The kick-off meeting presentation was made available on the City and County's web sites and citizenry who could not attend the meeting could vote on infrastructure preferences online.

The results of the voting are shown in Table 1. In both the urban and rural areas the monopole was chosen as the most preferred non-concealed tower type; concealed base stations are preferred over non-concealed equipment and the use of utility poles is preferred over building a new free standing tower. Concealed dual purpose types of towers are preferred in the urban areas and slick sticks, faux trees and tower wrapping is preferred for the rural and undeveloped study areas.

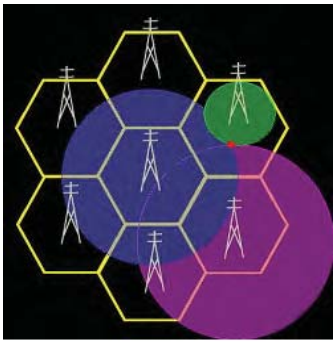
Figure 7: Examples of Concealed, Partially Concealed and Dual Purpose Towers

Rural & Urban #1 choices for non-concealed towers, dual purpose facilities and base stations	Rural #1 choices for concealed towers	Urban # 1 choices for concealed towers
		
		
		
		

Table 1: Preferences of Types of Infrastructure

Wireless Infrastructure

To design the wireless networks, radio frequency (RF) engineers overlay hexagonal cells representing circles on a map to create a grid system. These hexagons represent an area equal to the proposed tower or base station coverage area. The center of the hexagon pinpoints the theoretical "perfect location" for a tower or base station (antenna support facility). Next, coverage predictions are added from the tower or base station within the hexagon. The propagation pattern is generally circular and the size of the coverage area is affected by many variables such as antenna mounting elevation, topography, land cover, and size of the immediate subscriber base. The illustration to the right shows a smaller coverage area in green and the largest coverage area in purple. The difference in coverage areas could be caused by the antenna mounting elevations at each site (i.e., a lower antenna mounting elevation on the tower in the green circle and a higher mounting elevation on the tower in the purple shaded circle; or differences in cell type (macro, micro, pico, distributed antenna system (DAS etc.) network capacity or topography. The grid system models are unique to each service provider and maintained by each individual wireless provider's engineering department.



Hexagonal Grid with Circular Coverage from a Tower or Base Station
(Image: 5freshminutes.IT)

Antenna Network Capacity

The number of towers and/or base station sites located in a network grid not only determines the extent of geographic area covered, but also determines the number of subscribers (customers) the system can support at any given time. Each provider is different, but a given provider can only process or turn over a certain number of calls per minute and only a certain number of calls can occur simultaneously. These limits on service availability are referred to as network capacity. As local wireless customers, tourists and other users of applications increase, so does the need for network capacity. When the network capacity reaches its limit, a customer will usually experience a degradation of service such as a dropped call, a delayed text message or prolonged timeframe to access the results of an application request.

As the wireless network reaches design network capacity, it causes the service coverage area to shrink, further impacting wireless service objectives. Network capacity can be increased several ways. The service provider can shift channels from an adjacent site, or the provider can add additional towers and base stations with additional infrastructure.

A tower added to provide additional capacity in an area that already has network coverage is referred to as a "capacity tower". A capacity tower or base station provides additional calling resources that enhance the network's ability to serve more wireless phone customers within a specific geographic area. An assumption behind the capacity tower or base station concept is that an area already has plenty of radio signal propagation from existing coverage towers or base stations and the signals are clear. Too many calls sent or received through the existing towers or base stations result in "no service" indicators for subscribers who attempt to place a call.

According to a CTIA-The Wireless Association® indices report dated June 2014, the number of wireless devices deployed now exceeds the population of the United States. This does not mean that

every person has a cell phone rather, many people will have more than one wireless device. For example, many people have both a smartphone and a tablet. Subscriber density for 3G and 4G coverage areas determines how far apart towers and base stations can be without impacting service. Current network design standards, based on local wireless penetration rates and usage say that each site should handle between 1,750 and 2,500 devices. As the number of wireless devices increases in a given service area and as the amount of high bandwidth applications (i.e., streaming video) usage increases, coverage areas shrink and the number of subscribers must also be reduced by service providers to avoid overloading their systems.

Wireless broadband is the transmission of high-speed wireless data over the same medium that was previously only intended for voice communications. It is not limited to smartphones and tablets. It can also be for computers, laptops and other wireless devices. The FCC recently revised the definition of "broadband" to mean internet access with download speeds of at least 25 Mbps and upload speeds of at least 3 Mbps. Because of this revised standard there are few wireless service providers that can effectively meet these speeds today. Many wireless broadband providers today do not meet this revised standard. For purposes of this discussion, the term "broadband" will also encompass current technologies that do not quite meet the new standard today. The 3G and 4G wireless deployments added the capability of wireless data networks, now including the 700 and 2400 MHz frequencies, but many service providers are using their designated voice channels for broadband.

Wireless services are in a rapidly changing industry. Newer wireless handsets (Smartphones) can communicate via voice (phone) and via the Internet using Voice over Long Term Evolution (VoLTE). Some service providers such as Clearwire and other smaller regional companies provide wireless data/Internet, but not traditional voice service to its subscriber base as an alternative.

The infrastructure for wireless broadband is similar to that used for wireless phone service; a separate elevated antenna for each service provider. The area covered by one antenna shrinks in order to maintain an acceptable download speed for customers in the area resulting in the need for more wireless infrastructure to cover the same geographic area. For example, the number of tower sites needed to cover an area of approximately five square miles in Mesa County depending on the network technology used and during maximum usage periods is:

- 1G - Analog (1 site)
- 2G - Digital TDMA (3 sites)
- 3G - CDMA/Email/MMS (5 sites)
- 4G - Smartphones/LTE/AWS (8 sites)

Conclusions

Wireless handsets used for personal wireless services have changed significantly from the initial launch of cellular phones in the 1980's. The traditional infrastructure that serves as the network backbone for these handsets has not changed nearly as much from a visual perspective. The wireless networks still need elevated antennas that are above tree lines, rooftops and any manmade or natural obstructions to transmit and receive communication signals between wired and wireless devices. Moisture contained within foliage absorb and refract the signal and create an unpredictable propagation variable. This will always be a factor when designing wireless systems as the propagation characteristics do not change within the current transmission standard. Wireless antennas can function below the tree line but not at the same performance level when compared to antennas placed above the tree line at the same location. For this reason, the industry will continue to prefer placement of their antenna arrays above the tree line or in a favorable location with few manmade obstructions, to achieve optimal propagation from the infrastructure and maximize their investment in the communities they are servicing. The antenna sizes used have changed minimally over the years. Recent inclusion of remote radio heads and tower mounted amplifiers on the antenna mounting structure will generally result in larger and more complex antenna arrays as compared to the earlier 2G and 3G installations.

The structures on which the antennas are mounted have changed very little, other than generally becoming shorter. The monopole and lattice towers remain the most widely used tower infrastructure nationwide. Concealment techniques continue to be used to mitigate the visual impact of towers in areas identified by local governments as a concern.

Mergers and acquisitions (such as Cingular and AT&T, Sprint and Nextel, T-Mobile and MetroPCS) bring about a temporary downsizing and consolidation of infrastructure by combining electronic resources at existing sites and by enabling the reuse of the same frequencies more efficiently. Overall the industry will continue to need more infrastructure for the transition to 5G and beyond.

Chapter 2

Master Plan Development

Chapter 2: Master Plan Development

WMP Design Process

The WMP evaluates wireless coverage throughout the nine study areas by:

- Identifying, assessing, cataloguing and mapping exiting transmission equipment; and
- Designing an engineered search radii template and applying it over the jurisdictional boundary of the City and County to evaluate theoretical build-out conditions; and
- Forecasting future infrastructure needs based on the status of the existing deployments population trends and gaps in network coverage.

Existing Transmission Equipment, Stakeholders and Inventory

Prior to the granting of the cellular licenses in 1980 for the first phase of deployment, the United States was divided into 51 regions by Rand McNally and Company. These regions are described as Metropolitan Trading Areas (MTA). The spectrum auction conducted by the Federal Government for the 1900 MHz bands for 2G (PCS) further divided the United States into 493 geographic areas called Basic Trading Areas (BTA). Mesa County (including all incorporated and unincorporated areas) is located in the "Denver" MTA (a.k.a. MTA 22) and the "Grand Junction, CO" BTA (a.k.a. BTA 168). Service providers acquire the rights to deploy their networks by service area and range of spectrum frequency.

Per Section 704 of the Telecommunications Act of 1996, all service providers will require uninterrupted and continuous handoff service throughout the City and County. There are eleven known service providers that will each want to compete for the subscriber base in and around the City of Grand Junction and Mesa County. Each of these wireless voice and data providers will need towers and/or elevated antenna mounting locations to improve network coverage and capacity that will result in an ongoing need to deploy more infrastructure, especially in areas of greater residential density.

The following service providers have purchased licenses to serve all incorporated and unincorporated areas of Mesa County in the lower frequency ranges of 700 - 900 MHz: AT&T; Access 700, LLC, Dish, T-Mobile, Union Telephone (Union Cellular) and Verizon Wireless. Personal Communications Services (PCS) licensees and service providers for wireless phone and broadband operating in the higher frequencies of 1700 - 2700 MHz bands include: AT&T Wireless, Atlantic Wireless, Cleartalk, Clearwire Spectrum Holdings III, LLC, Commnet Wireless, LLC, Leaco Rural Telephone Cooperative, Inc., Sprint, T-Mobile and Verizon Wireless.

Most network service providers do not own the antenna mounting structure on which they attach their equipment. Tower companies typically construct and own the monopole, lattice or guyed towers and lease space on the towers to service providers. A service provider may also contract with a tower builder to construct a tower in a particular location and once the facility is constructed lease space on the newly constructed tower from the tower owner. Throughout Mesa County there are a number of tower companies who own and lease their vertical real estate to the service providers including: American Tower Corporation (ATC), Crown Castle International (CCI), The Leasing Company, SBA and others.

Existing Antenna Locations

Tasks A and B of the scope of services include research to gather antenna and tower location data in order to develop initial transmission equipment location base maps. The City and County GIS Departments provided some existing facility locations to CityScape. Additional infrastructure locations were obtained by CityScape from tower owners and various databases including the FCC's database. Once the sites were mapped each site was individually assessed and validated for:

- Physical location of existing telecommunications facilities currently within the defined study areas;
- Type of infrastructure;
- Ownership of the infrastructure; and
- Potential for future provider equipment co-location on the existing structures.

The assessment included an in-person visit to each of the transmission equipment locations. While there are many types of antennas used for a variety of communication purposes throughout the defined study areas (dispatch, wifi hot spots, broadcast etc.), CityScape generally only included infrastructure sites in the inventory that met the following criteria:

- Towers and base stations that currently support wireless and/or cell coverage and broadband infrastructure as referenced in the EDP;
    - Personal Wireless Service Facilities (PWSF) meaning, any staffed or unstaffed location for the transmission and/or reception of radio frequency signals or other wireless communications, including commercial mobile services, unlicensed wireless services, wireless broadband services, and common carrier wireless exchange access services as defined in the Telecommunications Act of 1996, and usually consisting of an antenna or group of antennas, transmission cables, feed lines, equipment cabinets or shelters, and may include a tower. The following developments shall be deemed a PWSF: new, replacement, or existing towers, public towers, replacement towers, co-location on existing towers, base station attached concealed and non-concealed antenna, concealed towers, and non-concealed towers (monopoles, lattice and guyed);
- Towers and base stations with microwave dish antenna because of their potential to promote co-location;
- Broadcast towers because of their potential to promote co-location; and
- Towers in remote locations because of their potential to either promote co-location or to be reconstructed to accommodate future co-locations.

The wireless infrastructure assessment identified 142 existing transmission equipment sites that meet the prescribed criteria within the nine study areas. Also included in the assessment are ten sites within a 1.5 mile perimeter of the County boundary. These locations were included because their signals may affect service within the defined study area. *Fifteen sites contain multiple towers so the number of towers exceeds the total number of sites.*

Table 2 provides a summary of the total number of types of antenna mounting structures found throughout the study areas and Table 3 identifies the ownership of the infrastructure as of January 2016.

TYPE OF INFRASTRUCTURE	TOTAL
Lattice Tower	69
Guyed Tower (includes 2 guyed monopoles)	47
Base Station (rooftop or water tank)	16
Monopole Tower	14
Concealed	6
Self Support	5
Wood Pole	4
Approved But Not Constructed	4
TOTAL	**165**

Table 2: Type of Infrastructure Summary

INFRASTRUCTURE OWNER	TOTAL
Others (independent tower owners and/or local businesses)	46
Other Government Agencies (City, County, State , BLM, DOI)	17
Broadcast Companies	20
SBA	19
Unknown	19
American Tower Corporation	7
Crown Castle International	5
Verizon Wireless	5
The Leasing Company	3
AT&T	2
TOTAL	**142**

Table 3: Owner of Infrastructure

Search Area Within Proposed Coverage Areas

Wireless location search rings are usually calculated to be circles approximately one-quarter of the radius of the proposed cell. In practice it is fairly simple to determine whether the calculated search ring radius is reasonable. The distance from the closest existing site is determined then halved and a handoff overlap of about twenty percent is added. One fourth of this distance is the search ring radius. Generally, in areas where signal coverage is the objective, taller towers allow the antenna to service a larger geographic coverage area and provide more potential for equipment co-locations by other service providers. Shorter tower heights limit the geographic coverage area and reduce the number of possible co-locations resulting in a greater number of towers required within each search ring.

The search area or search ring for new wireless infrastructure is part of a package provided to a site search consultant who looks for property that can be leased to accommodate the required wireless antenna and related infrastructure, whether that be a new tower, a rooftop or other existing structure. From an engineering perspective, any location within the search ring is considered to be acceptable to the provider after considerations are made for terrain and sometimes population

distribution. The relative location of the selected property to the ideal location within the search ring will dictate the required antenna height.

Search Area Radii

Search ring calculations for the low and high band frequencies are shown in Tables 4 and 5. The tables utilize the "Okumura-Hata" propagation path loss formula for low band, and the "COST-231" formula for high band. Maximum coverage radii for typical in-vehicle coverage is calculated for various tower heights, reduced by twenty percent to account for a reasonable handoff zone, then divided by four to obtain a search ring radius for each tower height. For example, according to the information in the following tables, a low band antenna mounted at the 100 foot elevation would have a search ring radius of 0.72 miles, and a radius of 0.36 miles for high band antennas.

ANTENNA MOUNTING HEIGHT	50'	100'	115'	150'
Radius, miles	2.53	3.6	3.88	3.91
Allow for handoff	2.03	2.88	3.1	3.6
Search ring, miles	0.51	0.72	0.78	0.9

Table 4: Okumura-Hata Coverage Predictions for 700-900 MHz

ANTENNA MOUNTING HEIGHT	50'	100'	115'	150'
Radius, miles	1.33	1.82	1.95	2.32
Allow for handoff	1.07	1.46	1.56	1.79
Search ring, miles	0.27	0.36	0.39	0.45

Table 5: COST 231 Coverage Predictions for 1700-2100 MHz

*Tables 4 and 5 represent theoretical predictions and each facility will vary somewhat from these estimates.

Tower Height and Antenna Mounting Elevation Considerations

Taller structures (towers, rooftops, and water tanks) may offer more opportunity for co-location which could theoretically decrease the number of additional towers and antennas required in an area, but capacity issues may overcome the advantage of the taller structure. Each potential structure must be subjected to an radio frequency (RF) engineering review to determine the extent to which height will increase co-location opportunities. In geographic areas where there is a large wireless phone subscriber base or terrain concerns, build-out plans may require lower antenna mounting elevations. Antennas located at higher points on the support facility are more common in rural areas. In some cases, wireless providers limit the antenna placement height in more populous geographic areas because they need multiple antennas installed at differing heights on a single tower

to target specific locations or to reduce the potential for interference with other equipment on the structure.

CityScape is often asked to estimate how many towers and base stations it will take to cover a particular geographic area. Because of the number of factors that might affect the coverage for a given service provider. CityScape uses theoretical root mean square (RMS) maps to help the client visualize the number of antenna locations that may be necessary to provide wireless communications coverage for a given geographic study area. This hypothetical network identifies the minimum number of tower or base station locations required for one service provider to provide complete coverage without any considerations for terrain, vegetative cover or subscriber base.

One of the key variables affecting the theoretical coverage analysis is the assumed height of the antenna on the tower or structure. CityScape reviewed the existing tower inventory and applicable height regulations for the City and County and determined the average tower height of the towers used for wireless telecommunications purposes to be around 118 feet. Therefore, the antenna mounting elevation of 118 feet was chosen for the development of the theoretical RMS coverage maps.

According to the Okumura-Hata propagation path loss formula coverage for low frequency (i.e, 800 MHz), a reasonable coverage area for an antenna mounted for cellular deployment at 118 feet on flat terrain is about 3.88 miles from the antenna. Referring to the "COST-231" formula for 1900 MHz a reasonable coverage area for an antenna mounted at 118 feet for a high band site on flat terrain is approximately 1.95 miles. The coverage reduction from 3.88 miles to 1.95 miles reflects the variable change from low to high band frequency.

Figures containing the theoretical maps for both low and high band frequencies, for each study area, can be found in Chapter 3.

Inventory Mapping

Mapping the existing antenna sites creates a base map from which observations and analysis can be derived relative to current and future deployment patterns. Generally, most of the wireless infrastructure in Mesa County is located within and around the more urban study areas, particularly the City of Grand Junction; Lower Valley, Palisade, DeBeque and the I-70 corridor. Whitewater is the only rural study area with a larger concentration of infrastructure because of the Highway 50 corridor and the larger subscriber base in that area. Minimal or no wireless network coverage was found for the undeveloped areas within the County's zoning jurisdiction.

Maps of the existing and proposed tower infrastructure and a site data table are provided in Chapter 3 for each individual study area. A complete listing including photographs of the verified infrastructure is provided in the January 16, 2016 inventory document.

Theoretical Composite Coverage From Existing Antenna Locations

The next step in the network evaluation process is to examine the coverage from all known antenna locations to identify gaps in network coverage. For the purposes of this WMP, CityScape has chosen to use theoretical composite propagation modeling.

Propagation modeling is a process that uses mapping technique to illustrate the expected level of cellular coverage theoretically provided from one or more antenna sites, based on reliable service factor most of the time. Relative signal strength is displayed in color bands to illustrate the anticipated coverage provided by each antenna. Signal strength, in this application, is a term used to approximate the level of operability and quality of service of a wireless device. The stronger the signal at the mobile device the better functionality it will have. A reduced signal lessens the quality of the call or data usage and can result in dropped calls, lack of or slow connectivity or frozen video. Distance between the mobile device and base station, intervening obstructions such as trees or buildings, and whether or not the subscriber is indoors or outside are all significant factors that affect signal strength and quality of service.

The level of propagation signal strength is shown for low band services in yellow and high band services in blue. These colors represent a generally acceptable and reliable signal level for indoor use for both low and high bands of service. Indoor usage is used as the lowest acceptable service threshold due to the signal loss that occurs from building penetration when compared to in-vehicle or outdoor pedestrian usage. Generally, the closer the mobile device is to the antenna, the more reliable and acceptable the service. The further the mobile device is from the antenna, and the closer it is to the edge of coverage, the more prone it is to service degradation when cellular usage on the tower becomes saturated or environmental conditions vary.

Theoretical composite propagation maps include terrain, vegetative cover, and current population density variables in the coverage calculations. The antenna mounting elevation is assumed to be at the highest mounting elevation of towers and base stations where the heights are known and at the average height of 118 feet for structures of unknown height. The resulting composite maps are included in the analysis provided in Chapter 3.

Network Capacity, Wireless Network Planning and Future Tower Site Projections

Service providers use base population estimates and subscriber data to design their network, decide how many antennas are needed and to determine how far apart antennas should be located. Depending on the number of wireless subscribers connected to a given antenna (i.e., the local wireless penetration rate) and each device's usage, a given site has the capacity to provide service to between 1,750 and 2,500 devices. As the number of wireless devices increases and/or usage increases (particularly for more data intensive applications like social media, music and video streaming), the geographic area covered by the antenna decreases and the number of subscribers served by the facility must be reduced into order to avoid overloading the system and impacting data transfer speeds. Based on the expected increases to both subscriber rates and usage over the next ten years, the current facility design model of 1,750 to 2,500 devices per site will shrink to between 500 to 1,200 devices per site, depending on the provider, services offered, and the number of overall subscribers. Because of this shrinkage, the number of towers and base stations needed to provide coverage to the same geographic area will increase dramatically over the ten year period covered by this study.

The shrinkage in propagation signal pattern resulting from projected technology changes, increases in subscribers, and the usage demand caused by new applications is shown in a second set of composite maps included in Chapter 3. These maps illustrate how the network coverage patterns for a single high frequency service provider are expected to shrink over the next ten to fifteen years.

fifteen years. The resulting areas with no service, gaps in service, and average/acceptable service are also areas of particular planning interest in the coming years. Comparing the current coverage maps with the ten year projection in undeveloped areas shows minimal change in future demand. However, comparing maps in more urban areas shows that coverage gaps will become larger if the network infrastructure is not expanded. The resulting geographic areas with marginal to no service are of particular planning concern over the next ten to fifteen years. The resulting areas with no service, gaps in service and average/acceptable service are also areas of particular planning interest in the coming years.

Estimation of Future Antenna Sites

CityScape has estimated, by study area, the number of sites that may be needed for planning purposes over the next ten to fifteen years. The estimates are based on calculations taking into account expected changes in population density, subscriber base and usage, daily transient movement through the given study area and how many calls a tower or base station may simultaneously serve at any given time. The projections include coverage, capacity, and broadband network objectives and take into account the variables of terrain, population and proposed maximum infrastructure height variables. The projection model includes all known existing antenna support structure locations (towers, rooftops, tanks and broadcast towers) for maximum co-location efficiency that reduces the number of new towers required within a given geographic area. These projection maps are also provided in Chapter 3.

While the launch date of 5G is unknown, it will happen within the next ten years and will provide true high-speed data transfer rates in excess of today's broadband download standard of 25 Mbps. With wireless broadband speeds available on 5G networks, most all types of communications (from voice to computer data) and entertainment (from cable/satellite TV and radio to first run motion pictures) will be available over wireless systems. Few new sites will be built to provide new coverage but to resolve over-capacity issues in an area currently served. Since 5G networks will utilize frequencies much higher than today's 4G networks, coverage areas will be more compressed around the antenna source. Most new towers will be built to place antennas close enough to the end user to deliver the high frequency and high bandwidth speeds needed to meet broadband demands.

Construction of the new sites needed to keep up with advancing technologies and customer demand is not expected to happen evenly throughout the study area. However, over the next ten to fifteen years the cities and County should anticipate that up to 40 new tower or base station sites will be needed. The more populated areas will likely see the development of "small cell" sites. Small cells are individual "nodes" that typically consist of concealed antennas located relatively close together on shorter tower or support structures. For example, small cells can be added to existing light posts and placed every few hundred feet, or may be concealed on shorter buildings. There are many options for small cell design that allow this infrastructure to be connected to form a "mini network" that can handle the high capacity required in the more urban areas.

The cities and County can easily anticipate five to eight co-locations, upgrades or antenna modifications (in any combination) per year over the next ten years based on expected changes in population density, subscriber base and usage, transient movement through the City and County and how many calls a tower or base station can simultaneously serve at any given time.

Study Areas

Chapter 3

Study Areas

The City of Grand Junction and Mesa County, on behalf of the Grand Junction Regional Communication Center (GJRCC), entered into an agreement with CityScape Consultants in May, 2015 to develop a County-wide WMP. CityScape used a three-step process to evaluate wireless coverage and develop a plan.

1. Identify, assess, catalogue and map exiting transmission equipment; and
2. Design an engineered search radii template and apply it over the jurisdictional boundary of the cities and County to evaluate theoretical build-out conditions; and
3. Forecast future infrastructure needs based on the status of the existing deployments, population trends, and network coverage gaps.

Nine study areas were identified across the County and detailed analysis was completed for each area creating, in effect, nine mini WMPs which are presented in this Chapter. The nine study areas are shown in Figure 8 and defined and grouped as follows:

Study Area A includes the population centers and surrounding areas of the County:

- City of Grand Junction/Persigo 201 Boundary (City of Grand Junction, Appleton, Horizon, Northwest, Orchard Mesa, Pear Park and Redlands)
- Lower Valley (City of Fruita, Fruita Buffer, Loma, Mack, and Lower Valley)
- Palisade (Town of Palisade, Clifton, Palisade Buffer/East OM)
- DeBeque

Study Area B includes four large, mostly unincorporated areas that receive significant tourists and local traffic:

- Glade Park
- Gateway
- Whitewater
- Collbran (Collbran, Plateau Valley, Mesa, Powderhorn)

Study Area C includes the major highway corridors:

- I-70 Highways
- Highway 50
- Highway 330
- Highway 65
- Highway 141
- Unaweep/Uncompahgre

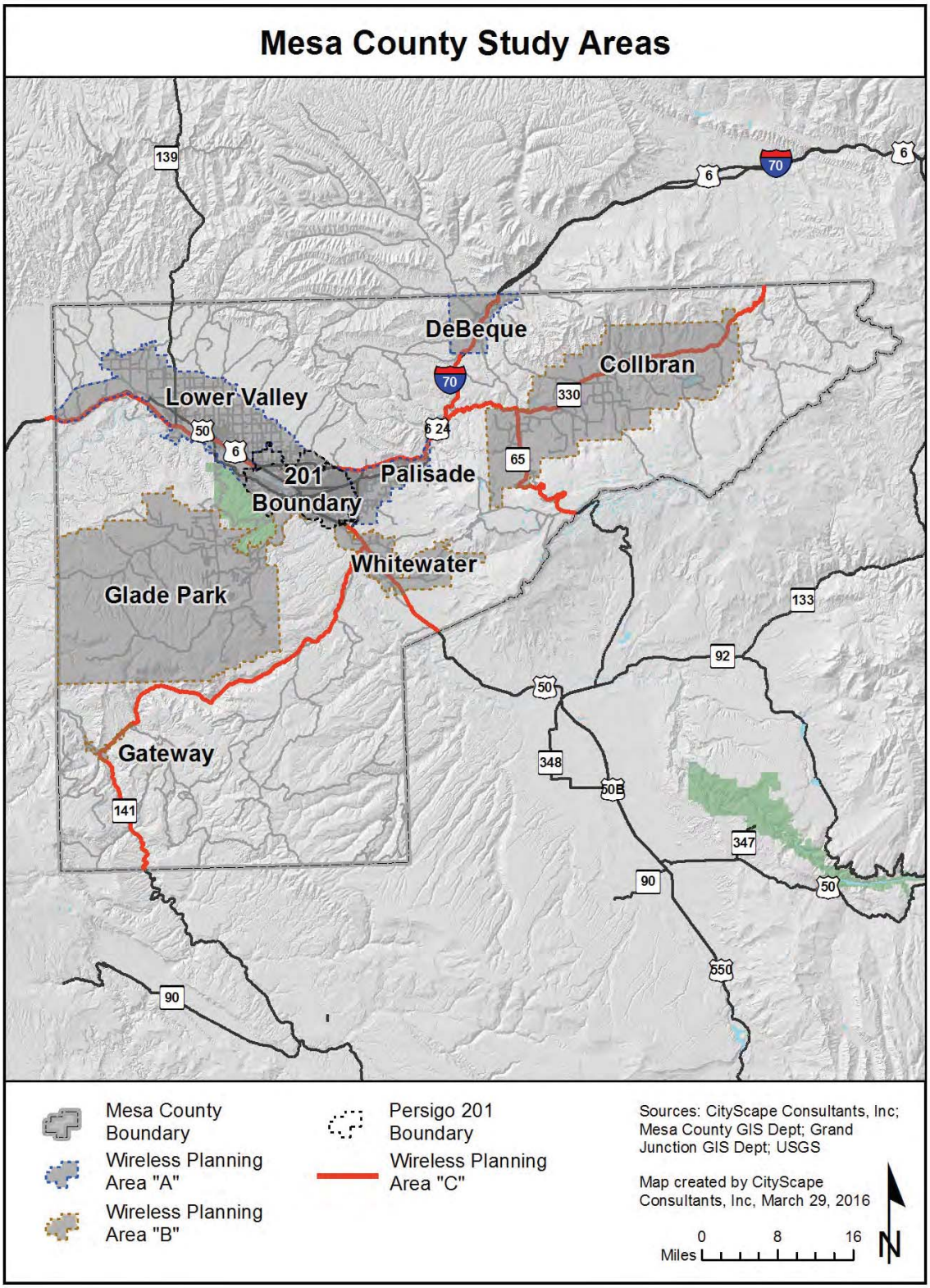


Figure 8: Study Areas

PWSF Inventory, Analysis and Mapping By Study Area

County-wide, CityScape identified 142 existing transmission equipment sites and 165 towers or base stations that either currently support PWSF installations i.e., cellular services or have the potential for supporting PWSF in the future. Some sites have more than one facility. The Wireless Infrastructure Inventory is included as an appendix to the Master Plan. CityScape recommends that the inventory be updated as facilities are added or modified.

Most of the current wireless infrastructure is located within and around the more urban areas of the County; Grand Junction, Palisade, Fruita and the Interstate corridor have the largest concentrations of infrastructure because of the larger subscriber bases in those areas. The more rural and undeveloped areas have minimal or no infrastructure. Table 6 identifies the number of sites that are located within each study area, plus sites within 1.5 miles outside (out) of the study area that may also provide coverage. the "Projected Fill-In" column indicates the number of additional sites that would be needed in each study area to provide best-case coverage, while the "Estimated Build-Out" column shows the number of sites that are more realistically predicted to be built.

Study Area	Existing Sites		Projected Fill-In (10-15 Years)	Estimated Build-Out (Including public safety)
	In	Out		
City of Grand Junction/201 Boundary	50	5	11-18	11-18
Lower Valley	10	11	7	4
Palisade	4	8	6	6
DeBeque	2	0	3	1-3
Glade Park	0	29	9	1-4
Gateway	0	3	3	1
Whitewater	5	1	4	2-4
Collbran	4	39	15	2-4

Table 6: Inventory Analysis by Study Area

The current infrastructure inventory and theoretical coverage mapping is provided for each study area in Chapter 3. Theoretical composite propagation modeling was used to determine the potential coverage of all existing antenna locations. Then, Geographic Information Systems (GIS) mapping techniques were used to factor in terrain, vegetative cover, and population density to create a more realistic coverage model. Next, CityScape used current and projected population data through 2030 (from the 2010 US Census; Colorado State Demography Office; Regional Transportation Planning Office; and Mesa County) to illustrate the impact that future growth would have on network coverage. Finally, by adding in projected changes related to technology improvements and population growth, CityScape was able to estimate future infrastructure needs for each study area over the next ten to fifteen years. The following pages include the "mini master plans" for each study area.

City of Grand Junction

City of Grand Junction

CHARACTERISTICS:

- Urban
- 63.79 Square Miles
- 2010 Population Estimate 102,277
- 2030 Population Estimate 137,145

City of Grand Junction Theoretical Root Mean Square Maps

Given the checkerboard effect on the city limits created when noncontiguous properties are annexed from the County into the City of Grand Junction, the Persigo 201 Boundary area was selected as the study area that best reflects the geographic area for the City. Throughout this document, the Persigo 201 Boundary is used interchangeably with the City of Grand Junction to identify the area generally corresponding to the City of Grand Junction.

Figures 9 and 10 represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas.

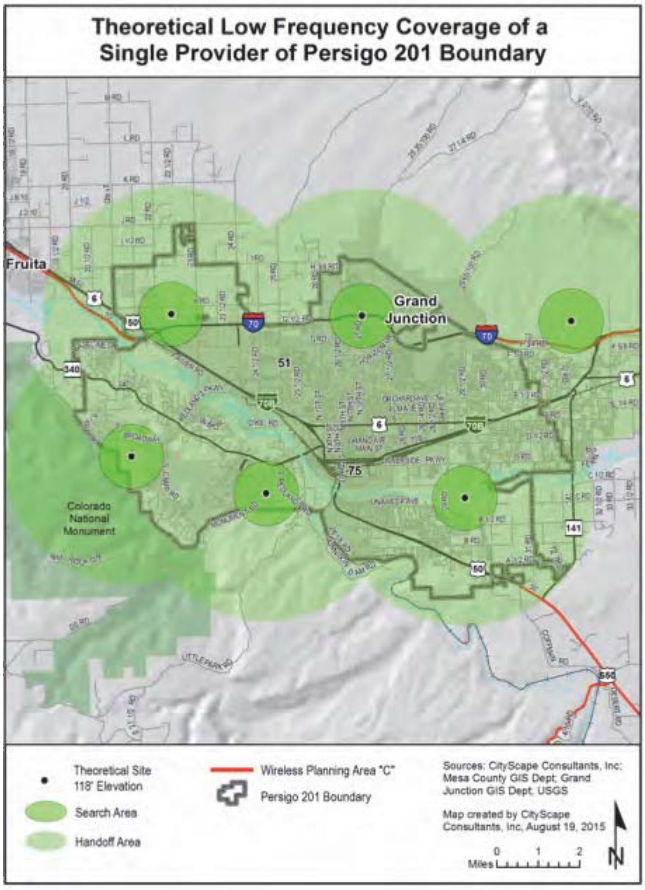


Figure 9: Theoretical Low Frequency Coverage

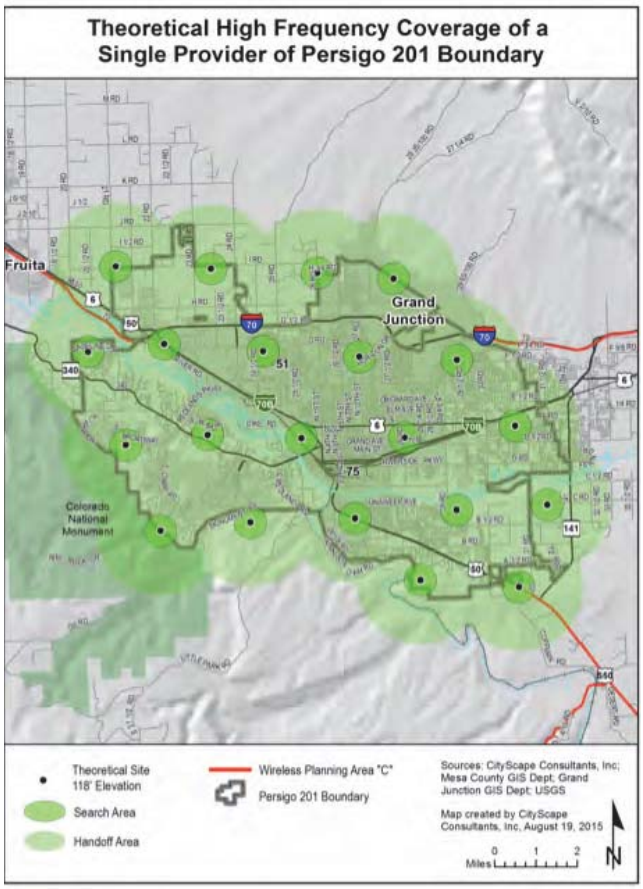


Figure 10: Theoretical High Frequency Coverage

Figure 9 illustrates that six towers or base stations equally distributed throughout the 201 Boundary would provide complete low frequency coverage to the defined study area. Figure 10 illustrates that 21 locations would be needed to provide complete high frequency coverage to the same geographic area.

Persigo 201 Boundary Existing Antenna Locations

Most of the 50 wireless transmission equipment sites considered as part of the 201 Boundary study area are located south of I-70 and north of I-70 B and Highway 6. This corresponds with where most of the commercial and industrial land use zones are located. Individual and small clusters of towers and base stations are located outside the triangular boundary created by the interstate and highway network in areas of larger residential land use zones and generally at higher ground elevations. Five of the sites are located just outside the 201 Boundary and are included in the study area because their signal affects coverage within the 201 Boundary. Two sites contains both a tower and a base station which explains why the number of towers is two greater than the number of sites.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	17	3	Eligible Base Station with PWSF	2	0
Non Eligible Tower with PWSF	2	1	Non Eligible Base Station with PWSF	3	0
Eligible Tower with no PWSF	3	0	Eligible Base Station with no PWSF	1	0
Non Eligible Tower with no PWSF	11	0	Non Eligible Base Station with no PWSF	9	0
Proposed Eligible Tower	2	1	Proposed Eligible Base Station	0	0
Total	**35**	**5**	**Total**	**15**	**0**
Site numbers in the 201 Boundary: 40-48, 50-59, 61-76, 78-85, 126, 127, 129					
Site numbers within 1.5 mile perimeter of the 201 Boundary: 60, 77, 86, 87, 128					

Table 7: Summary of Existing and Proposed Transmission Equipment

Figure 11 identifies the location of the sites listed in Table 7 above and are represented as follows:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the underlying zoning district.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the underlying zoning agency).
- Orange dot - Tower or base station that has either been approved and not yet built; or is undergoing review at the time of this publication.

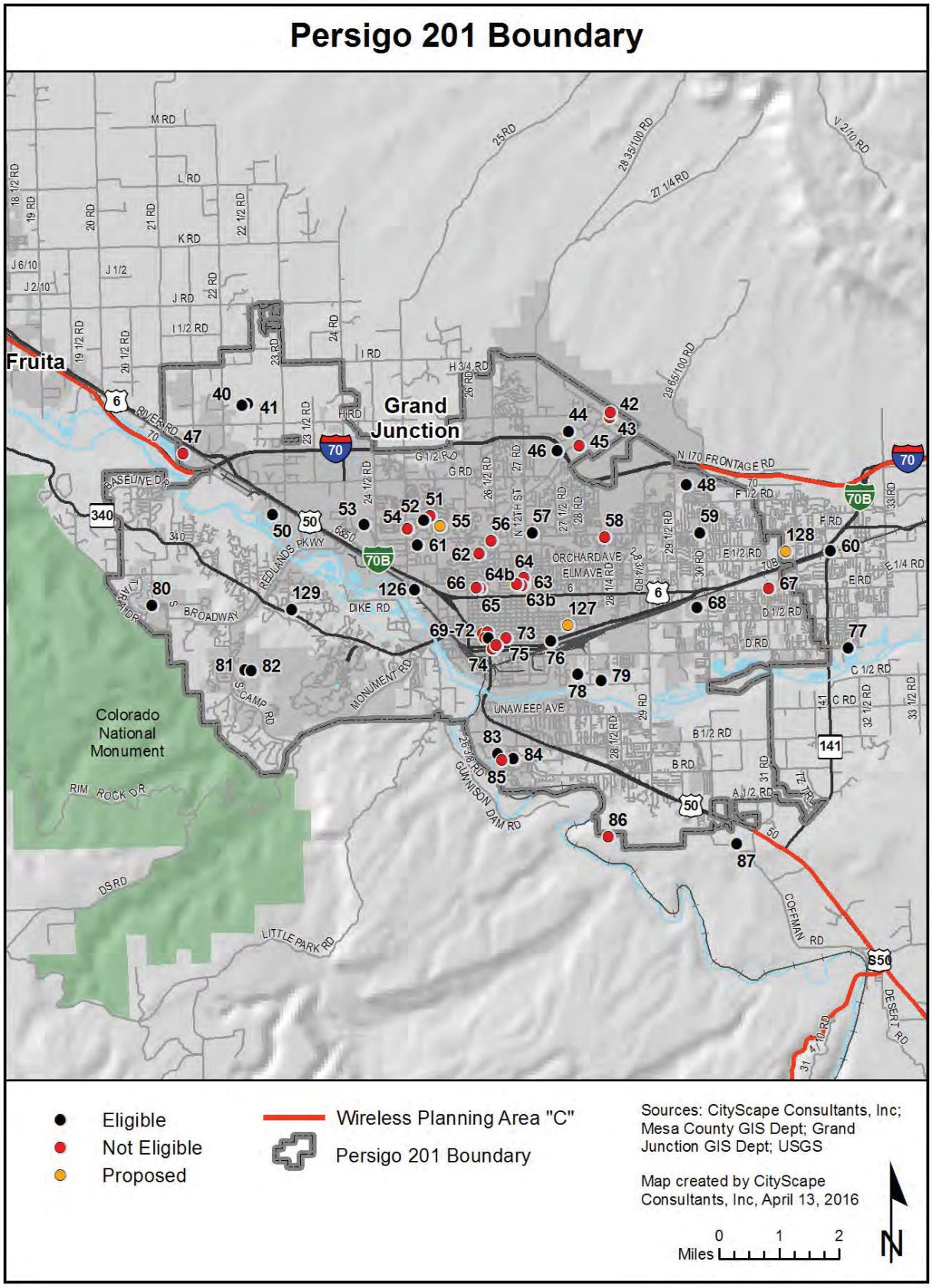


Figure 11: Existing Antenna Locations

Persigo 201 Boundary Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station, the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 12 illustrates current theoretical coverage for one service provider operating in the low or high band frequency assuming they had equipment on each site in the facility inventory. Figure 13 shows how population growth and technology changes will affect the current coverage model shown in Figure 12.

Both composite maps include the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation in both figures is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

Figures 12 and 13 identify the location of the inventoried sites categorized as follows:

- Black dot - Eligible towers or base stations with PWSF
- ★ Black star - Non eligible towers or base stations without PWSF

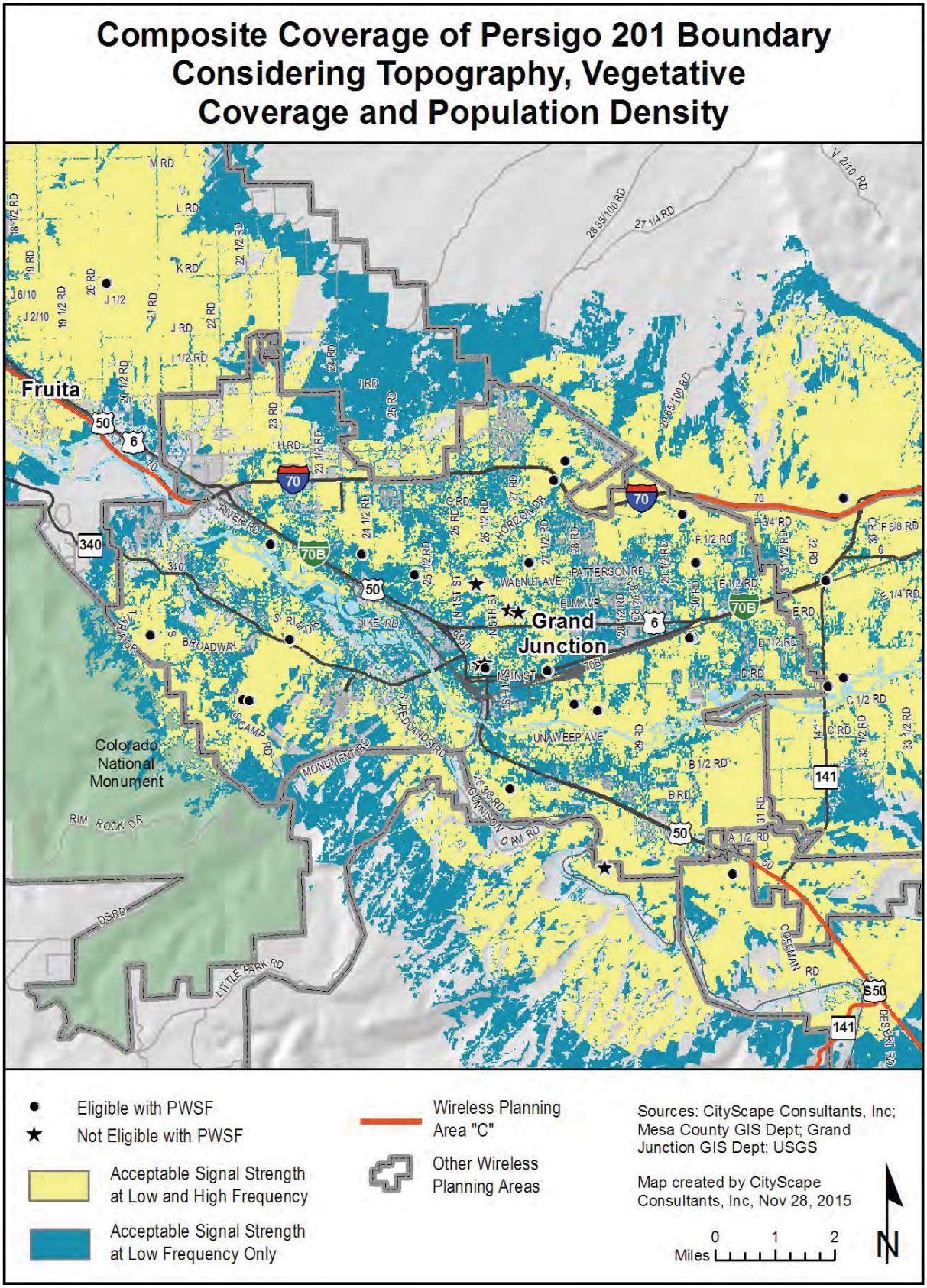


Figure 12: Current Potential Coverage

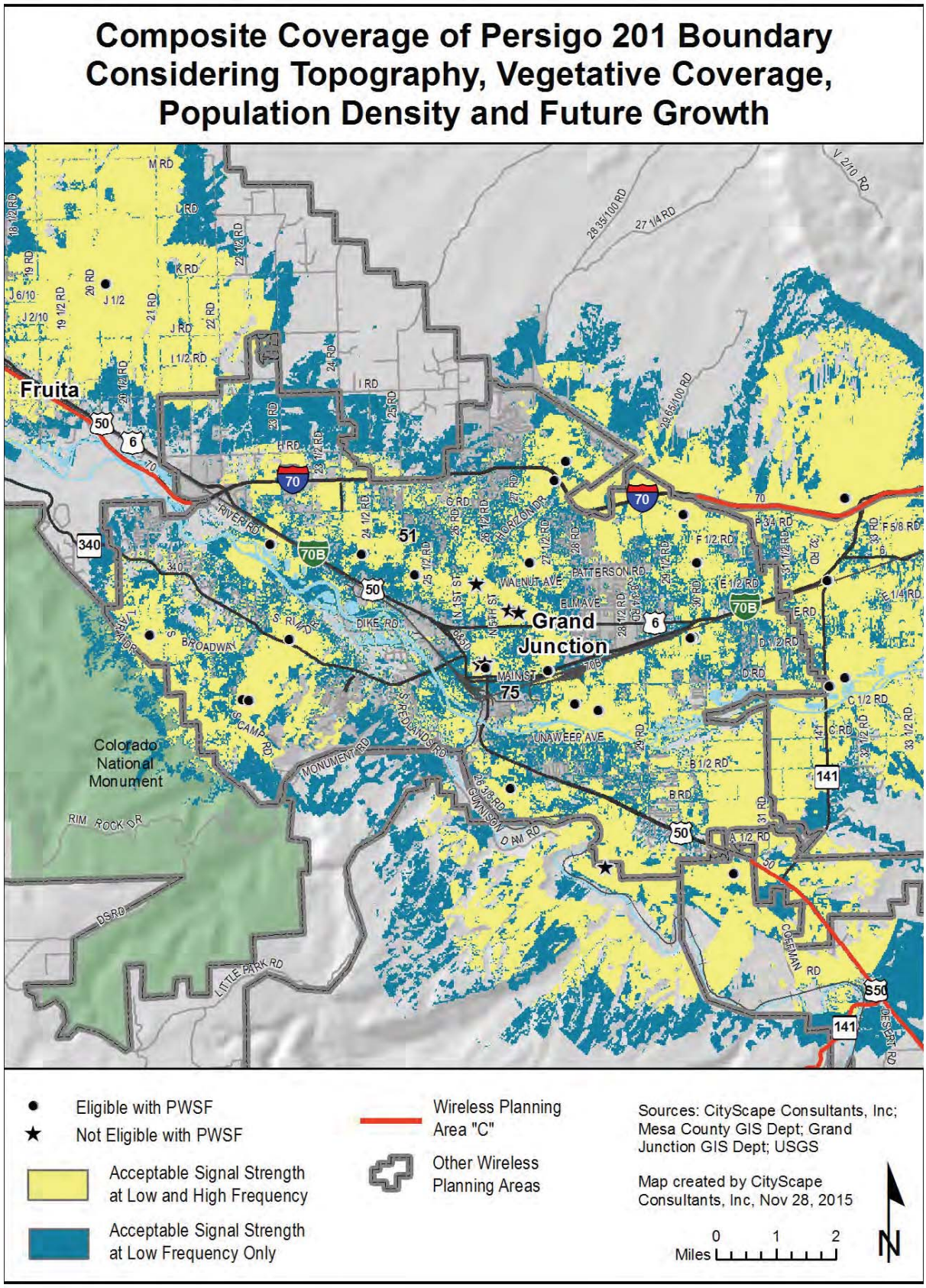


Figure 13: Current Potential Coverage Including Future Growth

Persigo 201 Boundary Propagation Mapping

In propagation mapping the gradation of colors from yellow to blue indicates the level of propagation signal strength. The geographic areas in yellow identify superior signal strength; green equates to areas with average signal strength; shades of blue symbolize acceptable signal strength; and gray shades show marginal or no signal strength.

Generally, the closer the proximity to the antenna the brighter shades of yellow within the geographic service area which means the better quality of wireless communications between the elevated antenna and the wireless handset. As distance increases between the handset and the antenna, the green, blue, and gray shades appear indicating geographic service areas with average, acceptable, and no signal strength respectively. Table 8 provides further explanation of the color coding relative to propagation signals.

SIGNAL STRENGTH		
COLOR	TITLE	DESCRIPTION
Yellow	Superior	Signal strength strong enough to receive signal in many buildings
Green	Average	Signal strength strong enough to receive signal in a car, but not inside most buildings
Blue	Acceptable	Signal strength strong enough to receive signal outside for many handsets, but no expectation of receiving a signal in a car or building
Gray	No Service	Signal strength is marginal or no service

Table 8: Signal Strength

Figure 14 illustrates various levels of propagation signal coverage including terrain, network capacity and environmental variables. While the industry standards identify green and blue shades as "average" and "acceptable" coverage, customers tend to find otherwise. Most 21st century wireless subscribers demand superior signal strength (yellow) in their residences, schools, offices, and places frequented for shopping and entertainment. As consumers continue the trend of terminating traditional land line phone services and using the wireless handset as the primary mode of communication, having superior signal strength inside buildings becomes paramount to meeting their expectations. Therefore the industry's "average" and "acceptable" coverage variables do not meet customer demands and expectations.

Figure 14 shows that significant gaps in coverage can be expected over the next ten to fifteen years with the existing infrastructure in the Persigo 201 Boundary. More than fifty percent of the projected signal coverage quality from existing infrastructure will be marginalized or eliminated based on technology changes anticipated with 5G networks. A significant amount of additional infrastructure will be needed to improve the quality of network coverage shown in areas with hues of green to blue and in all gray areas.

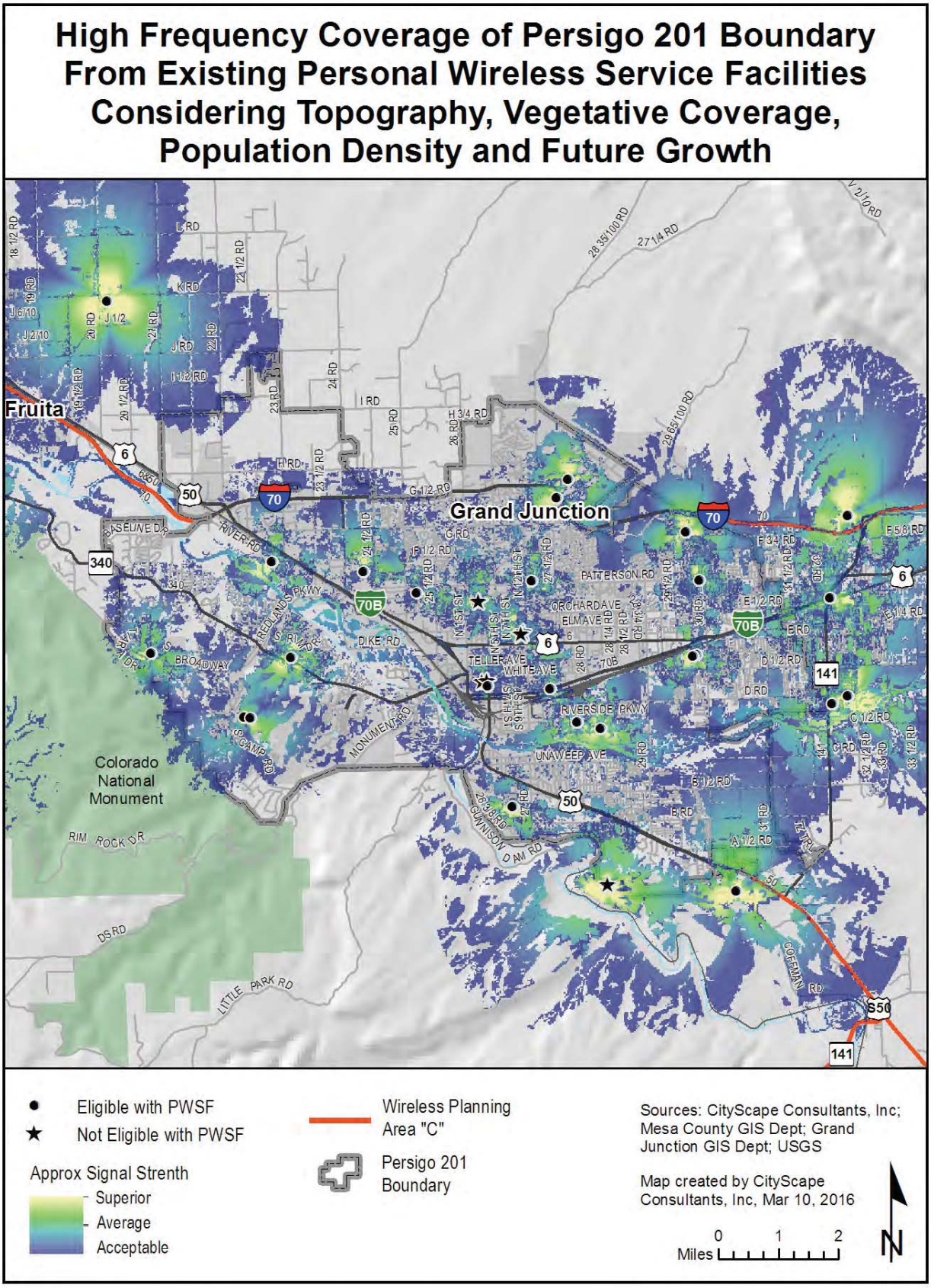


Figure 14: Propagation Map

Persigo 201 Boundary Estimation of Future Antenna Sites

Due to the urban characteristics of the City of Grand Junction, CityScape estimates that the largest number of new sites constructed over the next ten to fifteen years will be built in and around the Persigo 201 Study Area. Approximately 11-19 new towers or base stations will be needed to fill-in the anticipated coverage gaps. These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement through the study area and the number of calls a base station can service at any given time. The projections consider coverage, capacity, and broadband network objectives and take into consideration terrain, population and proposed maximum infrastructure height variables. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period. It should also be noted that even with this increase in new facilities, some areas within the study area will still be underserved due to the terrain and rural characteristics around the periphery of the study area.

Public Properties as Fill-in Sites for Network Gaps

When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

The City of Grand Junction has affirmed their interest in the use of City owned properties within the Persigo 201 Boundary and has established the following minimal criteria for each property:

- The property shall be located within the Grand Junction Persigo 201 Boundary or can be included in the Grand Junction Persigo 201 Boundary.
- The property shall be one acre minimum in lot size.
- The property shall have vehicular access to an improved public right-of-way.
- The property shall have access to utilities.
- The property shall be outside the 100 year flood plain.
- The cellular facility shall meet all City development standards and be subject to all regulations of the zoning code including but not limited to, "in residential zoning districts

and in mixed use zoning districts that include residential uses, new concealed towers shall not be permitted on lots where the primary use or principal structure is single-family or two-family residential, group living, day care, or a multi-family structure of fewer than three stories. Examples of land uses/structure types in residential areas where the site may include a concealed tower are: school, religious assembly, fire station, stadium tower or stand, or other similar institutional/civic uses/structures".

- Concealment is required and the owner of the property must identify the type of concealment proposed with the understanding that if accepted by the City, then any type of concealment aside from what is proposed and accepted at the time of the Master Plan vetting process would require a conditional use permit (CUP).

The City has reviewed and qualified a total of 15 of the 19 fill-in locations. The City has identified site-specific concealment infrastructure required on each property. These properties are referenced as "Public Priority" site locations and if developed according to the recommendations in Table 9 and the City's zoning codes, are entitled to a streamlined administrative approval process.

Additionally, the City invited private property owners to submit their land as potential priority site locations provided that the properties met the same criteria as the City-owned priority sites. Private property owners seeking inclusion of their property as a priority site in the Master Plan submitted an application to the City of Grand Junction for review. The selected non-public priority sites are also listed in Table 9. During the vetting process the Orchard Mesa Irrigation District a public property land owner requested that three of their properties be reviewed and added to the "public priority" site list. All three properties are included in Table 9 as sites Q, R and S.

Public properties not owned by the City of Grand Junction but which could potentially be used as fill-in sites are listed in Table 9. These properties have not been vetted since they are not owned by the City of Grand Junction. However, as potential fill-in sites they are listed in Table 9 with a "not determined" recommendation. Use of these public fill-in sites is encouraged and promoted in the City's ordinance, but will require conditional use approval.

Public Priority Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
I1	City of Grand Junction	Grand Junction City Limits	727 24 1/2 Road	2701-333-00-941 Zoned CRS	35.595	Canyon View Park Entry or Art Feature; Slick Stick
I2	City of Grand Junction	Grand Junction City Limits	728 24 Road	2701-333-00-942 Zoned CSR	39.741	Canyon View Park Entry or Art Feature; Slick Stick
I4	City of Grand Junction	Grand Junction City Limits	730 24 Road	2701-333-00-948 Zoned CSR	36.793	Canyon View Park Entry or Art Feature; Slick Stick
J1	City of Grand Junction	Grand Junction City Limits	773 Old Orchard Street	2701-352-51-945 Zoned CSR	31.653	Saccomanno Park Slick Stick; Concealed 3-Legged Pole
J2	City of Grand Junction	Grand Junction City Limits	822 Lanai Drive	2701-264-14-941 Zoned CSR	2.817	Paradise Hills Park Banner Pole
J3	City of Grand Junction	Grand Junction City Limits	731 27 Road	2701-354-00-949 Zoned CSR	12.643	Horizon Park Banner Pole
K1	City of Grand Junction	Grand Junction City Limits	2155 Broadway	2947-231-17-944 Zoned CSR	3.269	Fire Station 5 Slick Stick; Flag Pole; Concealed 3-Legged Pole
L	City of Grand Junction	Grand Junction City Limits	2400 Blue Heron Road	2945-093-00-945 Zoned CSR	46.519	Colorado River Front Trail Slick Stick; Banner Pole
N1	City of Grand Junction	Grand Junction City Limits	405 Ridges Boulevard	2945-174-24-944 Zoned PD	1.926	Open Space Banner Pole
N2	City of Grand Junction	Grand Junction City Limits	407 Saddle Court	2945-174-29-941 Zoned PD	28.041	Open Space Banner Pole
N3	City of Grand Junction	Grand Junction City Limits	406 Ridges Boulevard #F1	2945-212-13-944 Zoned PD	3.207	Open Space Banner Pole
N4	City of Grand Junction	Grand Junction City Limits	585 Hidden Valley Court	2945-212-14-944 Zoned PD	7.028	Open Space Banner Pole
Q	Orchard Mesa Irrigation District (OMID)	Mesa County	158 29 1/2 Road	2943-321-00-946 Zoned RSF-R	1.672	Slick Stick; Flag Pole; Concealed 3-Legged Pole

Public Priority (cont.) Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
R	USA c/o OMID	Grand Junction City Limits	2962 A 1/2 Road	2943-321-00-913; 2943-32`-00-914 Zoned RSF-4	4.725	Slick Stick; Flag Pole; Concealed 3-Legged Pole
S	USA c/o OMID	Mesa County	121 31 Road	2943-334-00-948 Zoned AFT	19.89	Slick Stick; Flag Pole; Concealed 3-Legged Pole
Other Public Property Site ID	**Owner**	**Location**	**Address**	**Parcel Number**	**Acreage**	**Site-Specific Recommendation**
H1	Mesa County	GJ 201 Boundary	651 Railhead Circle	2945-062-16-938	9.194	Not Determined
H2	State of Colorado	GJ 201 Boundary	Walter Walker Wildlife Area	2947-142-00-922	470.112	Not Determined
I3	Caprock Bldg Association	Grand Junction City Limits	Caprock Elementary	2701-334-00-940 Zoned R-5	7.683	Not Determined
K2	District 51 Master Lease Association	GJ 201 Boundary	Redlands Middle School	2947-231-00-949	20.239	Not Determined
M	Colorado Game Fish and Parks Department	Grand Junction City Limits	711 Independent Avenue	2945-104-00-922	9.88	Not Determined
O	State Highway Department	Grand Junction City Limits	606 S 9th Street	2945-231-03-928	5.085	Not Determined
P	Mesa County	GJ 201 Boundary	275 1/2 Coulson Drive #B	2943-302-47-935	7.495	Not Determined
Non Public Priority Site ID	**Owner**	**Location**	**Address**	**Parcel Number**	**Acreage**	**Site-Specific Recommendation**
T	Museum of Western Colorado	Grand Junction City Limits	462 Ute Avenue	2945-143-28-992 Zoned B-2	1.15	Concealed Base Station on Observation Station
U	Museum of Western Colorado	Mesa County	3065 Patterson Road	2943-091-00-993 Zoned RSF-4	22.34	Farm Entry; Art Feature; Slick Stick; Flag Pole; Concealed 3-Legged Pole

Table 9: Grand Junction Potential Fill-In Public and Non Public Properties

Figure 15 illustrates the potential solutions that will need to be considered to fill-in the gaps identified in Figure 14. The area colored with yellow to green gradients shows the theoretical coverage from existing towers and base stations with PWSF. The areas colored with light to dark shades of red gradients show the projected theoretical coverage from existing towers and base stations without current PWSF that could be utilized or upgraded for co-locations. The areas colored with light to dark orange gradient would be filled with new infrastructure that has already been submitted for review. The areas colored with pink gradient represent areas where new fill-in sites would need to be located to provide the required coverage.

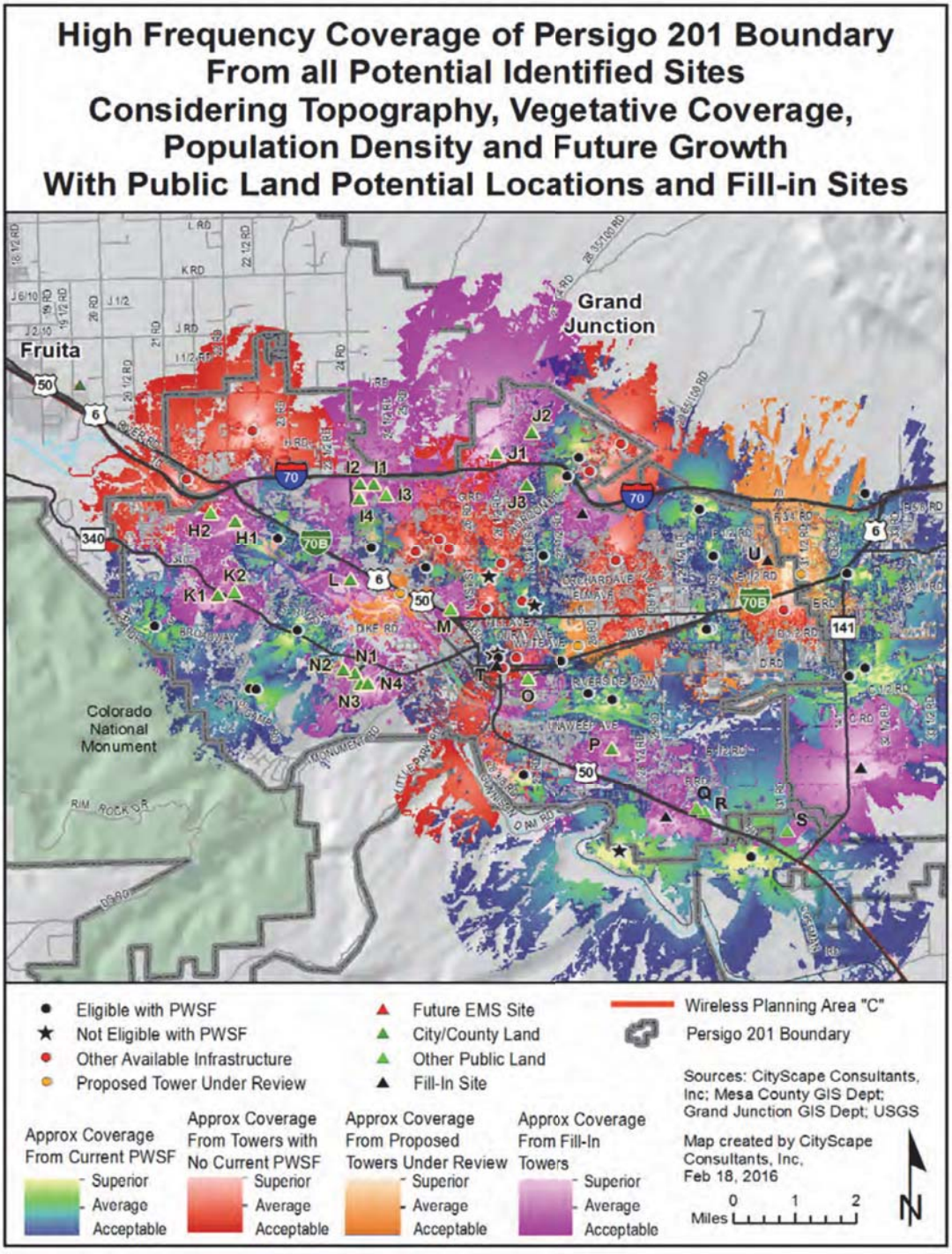


Figure 15: High Frequency Coverage with Future Fill-in

Lower Valley

Study Area A: Lower Valley

CHARACTERISTICS:

- Rural
- 139.85 Square Miles
- 2010 Population Estimate 18,437
- 2030 Population Estimate 26,900

Lower Valley Theoretical Root Mean Square Maps

The following maps represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas.

Figure 16 illustrates that 14 towers or base stations equally distributed throughout the Lower Valley would provide complete low frequency coverage to the defined study area. Figure 17 illustrates that 40 locations would be needed to provide complete high frequency coverage to the same geographic area.

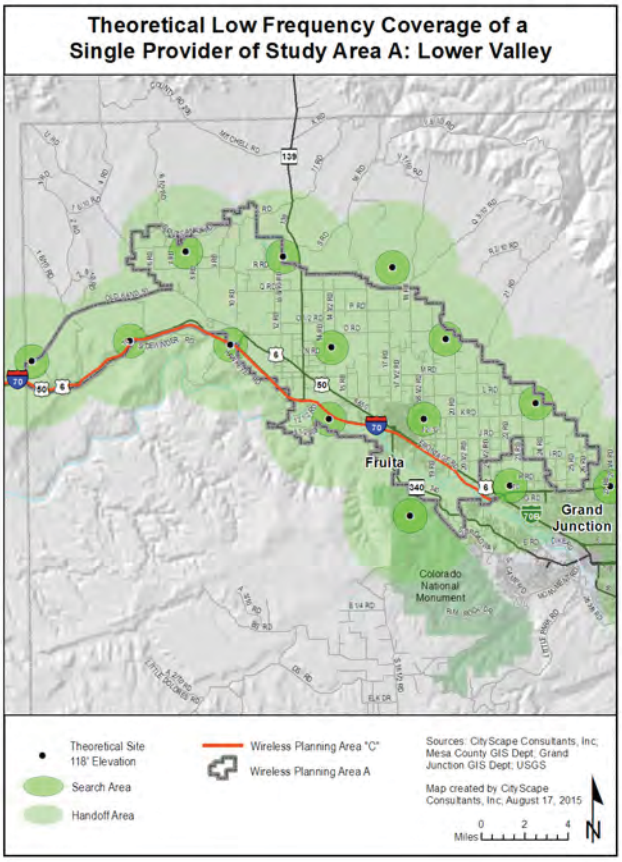


Figure 16: Theoretical Low Frequency

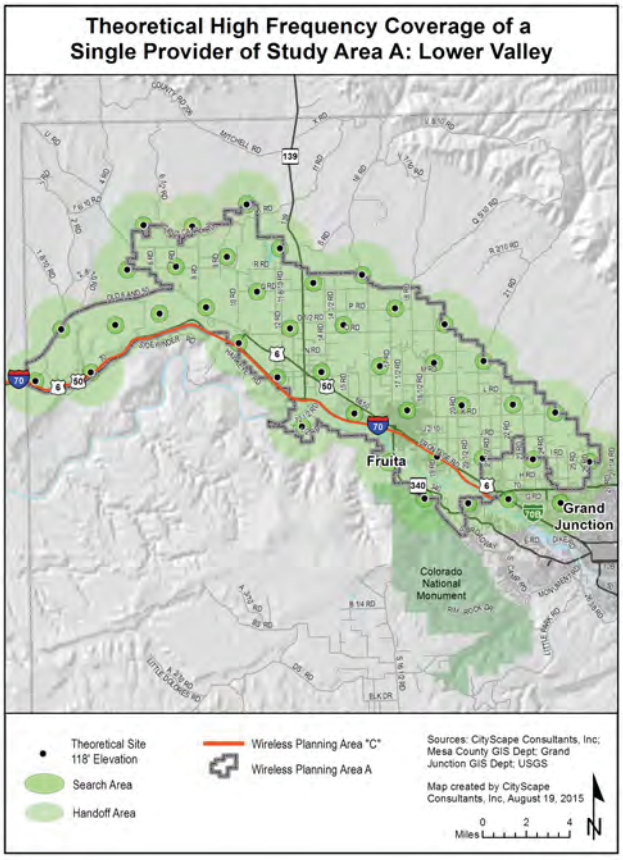


Figure 17: Theoretical High Frequency

Lower Valley Existing Antenna Locations

Almost half of the 21 total sites in and around the Lower Valley are located within a 1.5 mile perimeter of the actual study area and 9 of those 10 sites are within the Persigo 201 Boundary. Of the 10 sites within the Lower Valley Study Area only four currently have PWSF on them. Three of the sites (35, 36 and 37) are located parallel to I-70 and two of the sites (39 and 131) are located in the eastern half of the Lower Valley. Sites 136-139 all support wireless internet facilities. This pattern of deployment is very common for the industry. The greatest concentration of towers and base stations are closer to the urban area along the major transportation networks.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	4	3	Eligible Base Station with PWSF	0	1
Non Eligible Tower with PWSF	0	0	Non Eligible Base Station with PWSF	0	0
Eligible Tower with no PWSF	0	2	Eligible Base Station with no PWSF	0	0
Non Eligible Tower with no PWSF	6	2	Non Eligible Base Station with no PWSF	0	2
Proposed Eligible Tower	0	1	Proposed Eligible Base Station	0	0
Total	**10**	**8**	**Total**	**0**	**3**
Site numbers in the Lower Valley: 34-39, 136-139					
Site numbers within the 1.5 mile perimeter of the Lower Valley: 40, 41, 47, 50-55, 80, 131					

Table 10: Summary of Existing and Proposed Transmission Equipment

Figure 18 identifies the location of the sites listed in Table 10 above and are represented as follows:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the appropriate local government agency.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the appropriate local government agency).
- Orange dot - Tower or base station that has either been approved but not yet built; or is undergoing review at the time of this publication

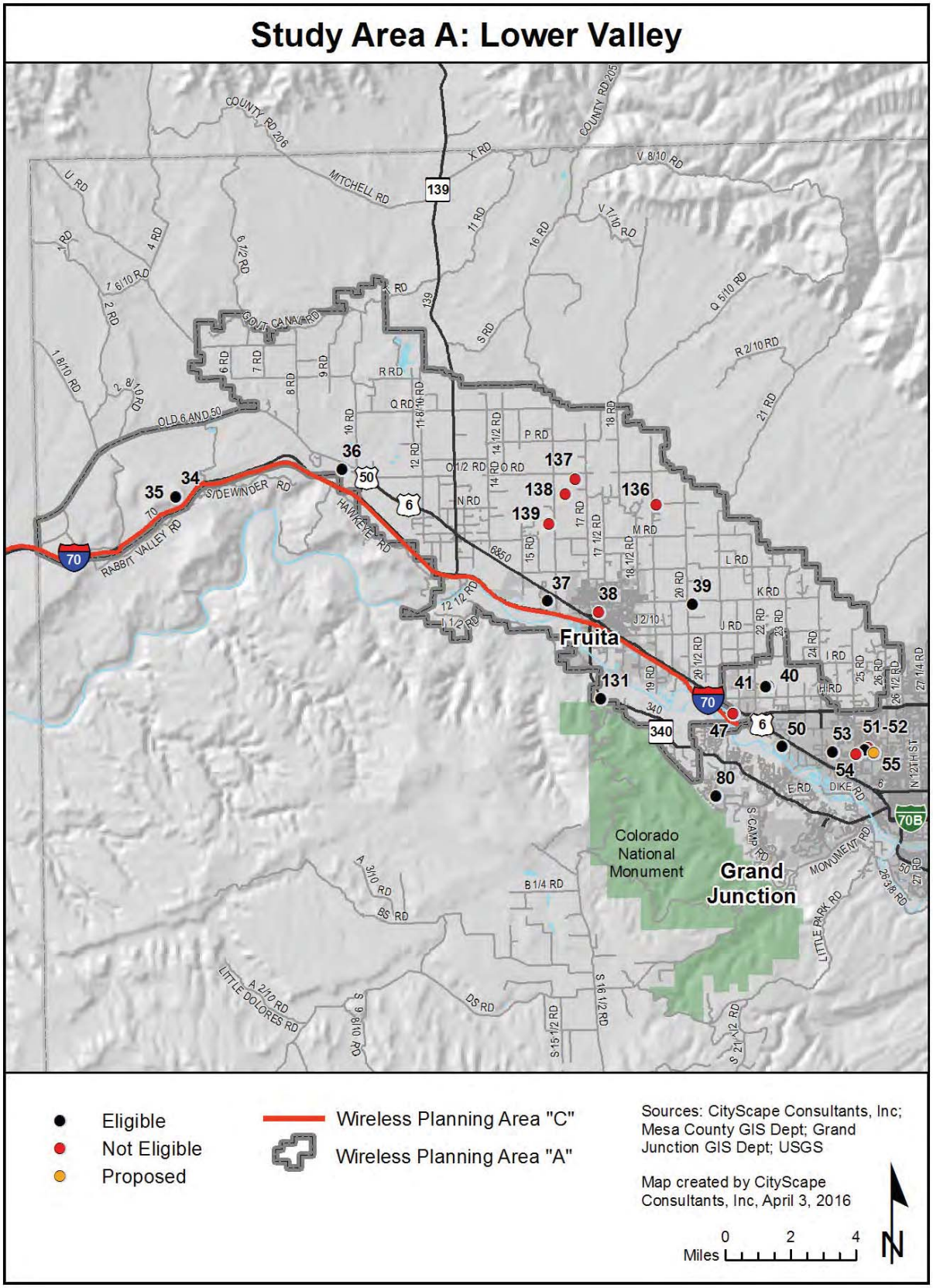


Figure 18: Existing Antenna Locations

Lower Valley Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 19 illustrates current theoretical coverage for one service provider operating in the low or high band frequency assuming they had equipment on each site in the facility inventory. Figure 20 shows how population growth and technology changes will affect the current coverage model shown in Figure 19.

Both composite maps include the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation in both figures is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

Figures 19 and 20 identify the location of the inventory sites categorized as follows:

- Black dot - Eligible towers or base stations with PWSF
- ★ Black star - Non eligible towers or base stations without PWSF

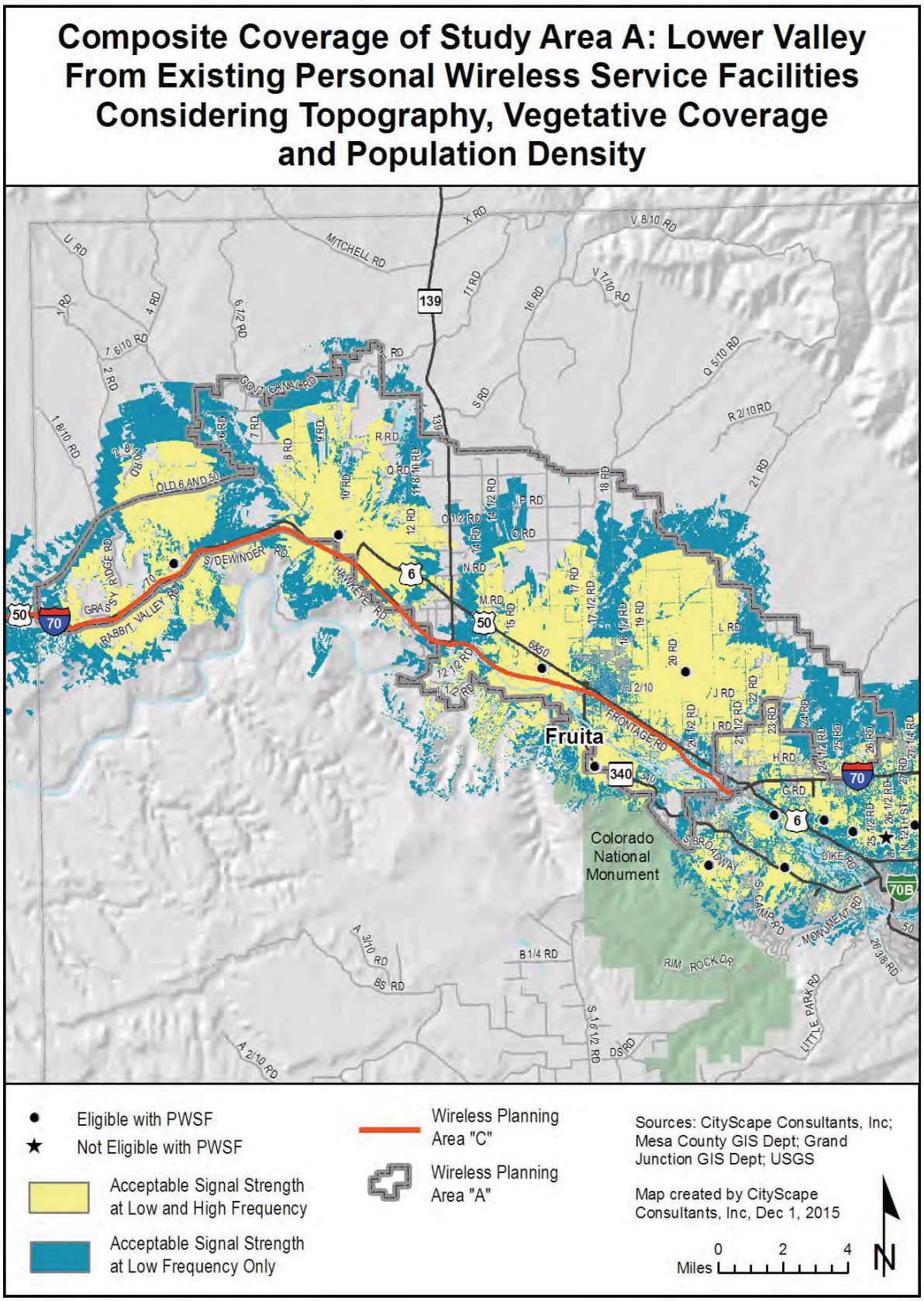


Figure 19: Current Potential Coverage

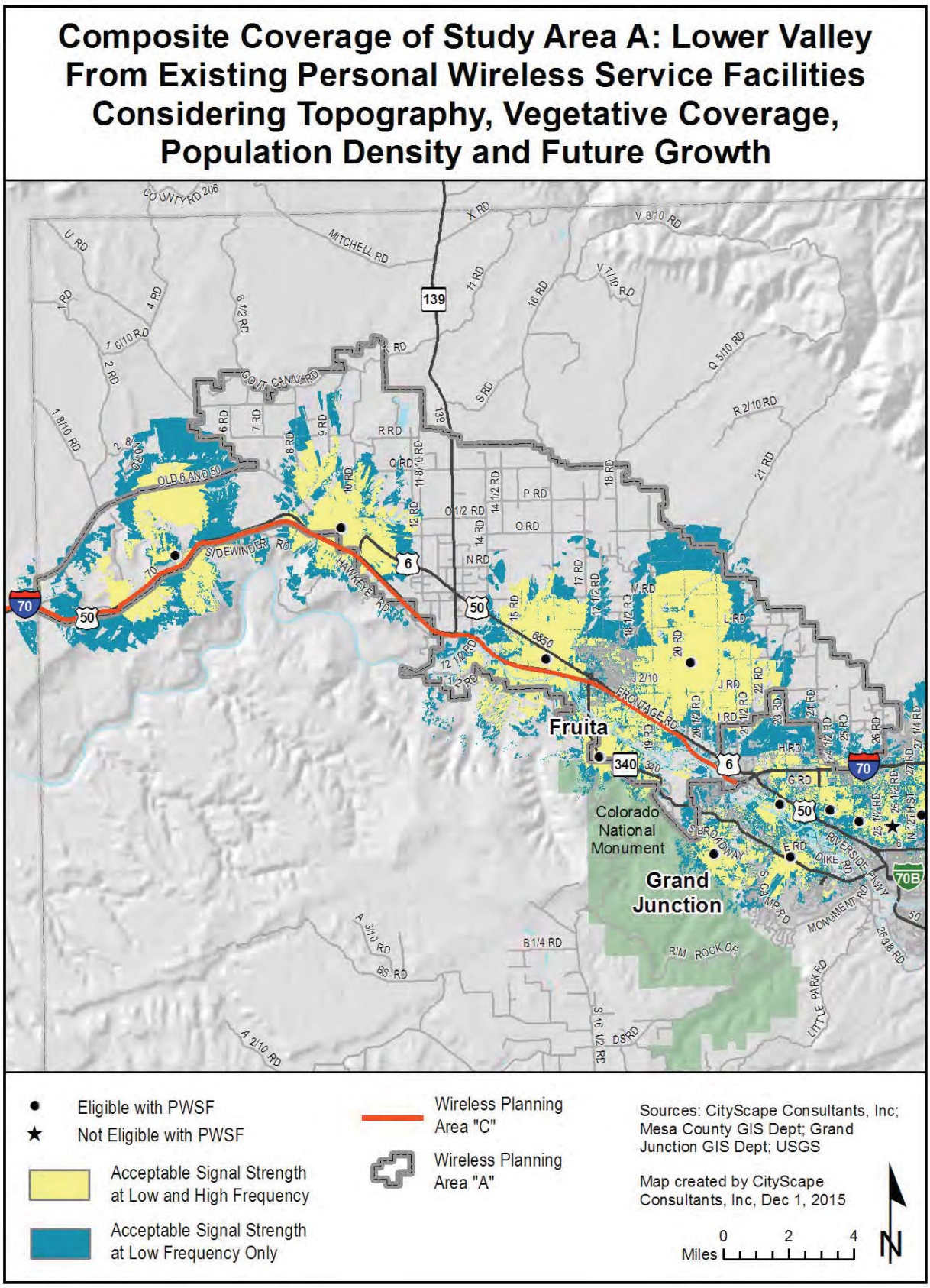


Figure 20: Current Potential Coverage Including Future Growth

Lower Valley Estimation of Future Antenna Sites

Due to the rural characteristics of the Lower Valley, CityScape estimates that the largest number of new sites constructed over the next ten to fifteen years will be built along the I-70 corridor. Approximately seven new towers or base stations will be needed to fill in anticipated coverage gaps. However, only four of the seven sites have been turned on in the gap analysis map in Figure 20 because CityScape believes it is unlikely that the industry will add all seven facilities over the next ten to twelve years.

These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement throughout the study area and the number of calls a base station can service at any given time. The projections consider coverage, capacity, and broadband network objectives and take into consideration terrain, population and proposed maximum infrastructure height variables. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period. It should also be noted that even with this increase in new facilities, some areas within the study area will still be underserved due to the terrain and to the rural characteristics of portions of the study area.

CityScape has reviewed the gaps in network coverage in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

Figure 21 indicates how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 11 identifies potential public property fill-in sites. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
D	State of Colorado		Highline State Park	2691-053-00-922	325.442	Not Determined
E1	Lower Valley Protection District	Loma	1341 13 Road	2691-334-04-948	0.79	Not Determined
E2	State Department of Highways	Loma	1346 13 3/10 Road	2691-342-00-924	9.762	Not Determined
F1	City of Fruita	Fruita	324 N Coulson Street	2697-172-00-940	1.398	Not Determined
F2	City of Fruita	Fruita	300 W Ottley Avenue	2697-172-00-946	6.04	Not Determined
F3	Lower Valley Protection District	Fruita	168 N Mesa Street	2697-172-53-944	0.675	Not Determined
F4	District 51	Fruita	Fruita Middle School	2697-172-28-942	12.725	Not Determined
F5	City of Fruita	Fruita	210 Frontage Road	2697-173-09-945	3.51	Not Determined
G	Mesa County	Fruita	916 19 1/2 Road	2697-224-00-939	5.281	Not Determined

Table 11: Lower Valley Potential Fill-In Public Property

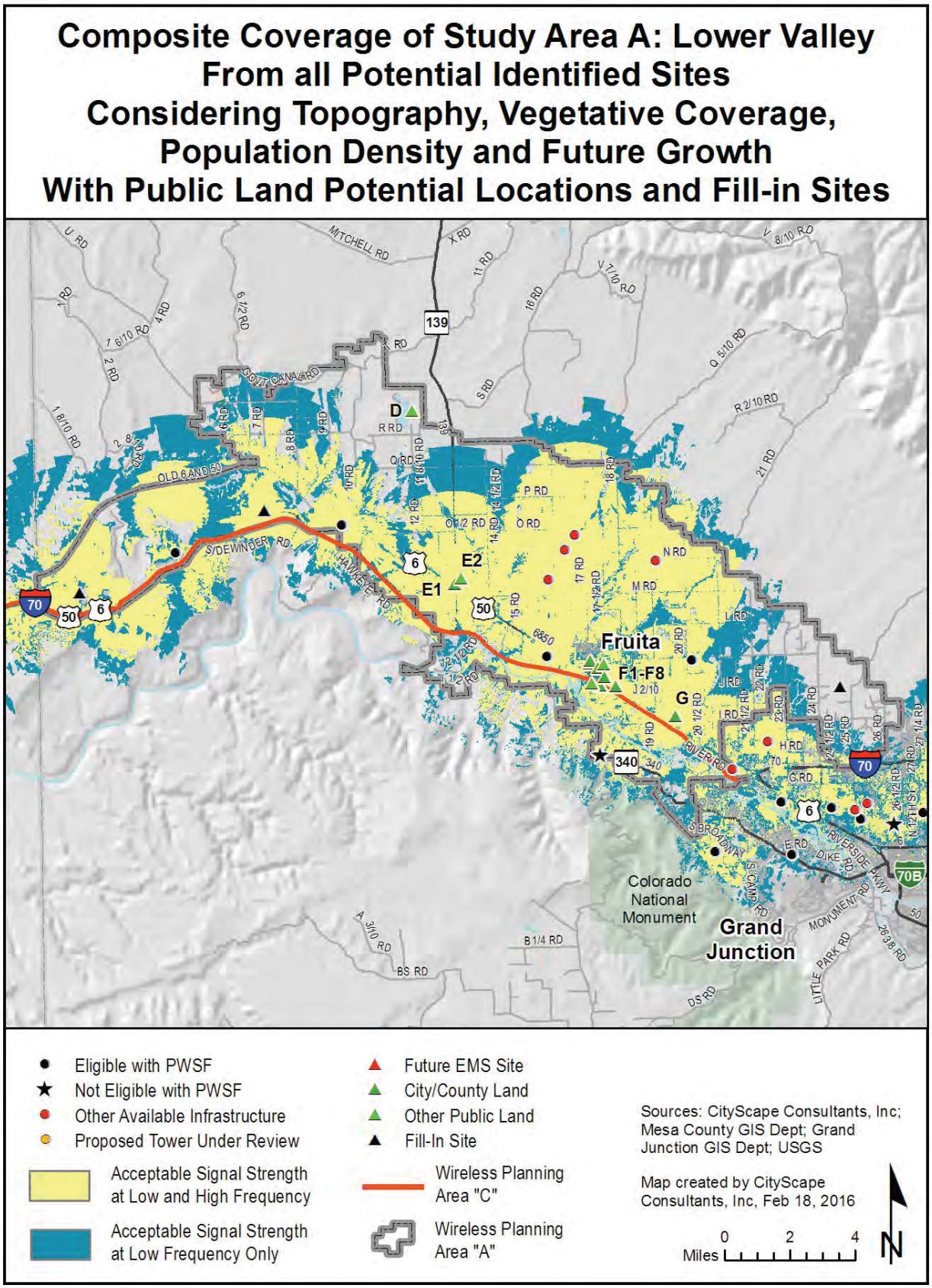


Figure 21: Coverage with Future Fill-In

Palisade

Study Area A: Palisade

CHARACTERISTICS:

- Rural
- 35.21 Square Miles
- 2010 Population Estimate 18,642
- 2030 Population Estimate 24,247

Palisade Theoretical Root Mean Square Maps

The following maps represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas. Figure 22 illustrates that six towers or base stations equally distributed throughout the Palisade area would provide complete low frequency coverage to the defined study area. Figure 23 illustrates that 15 locations would be needed to provide complete high frequency coverage to the same geographic area.

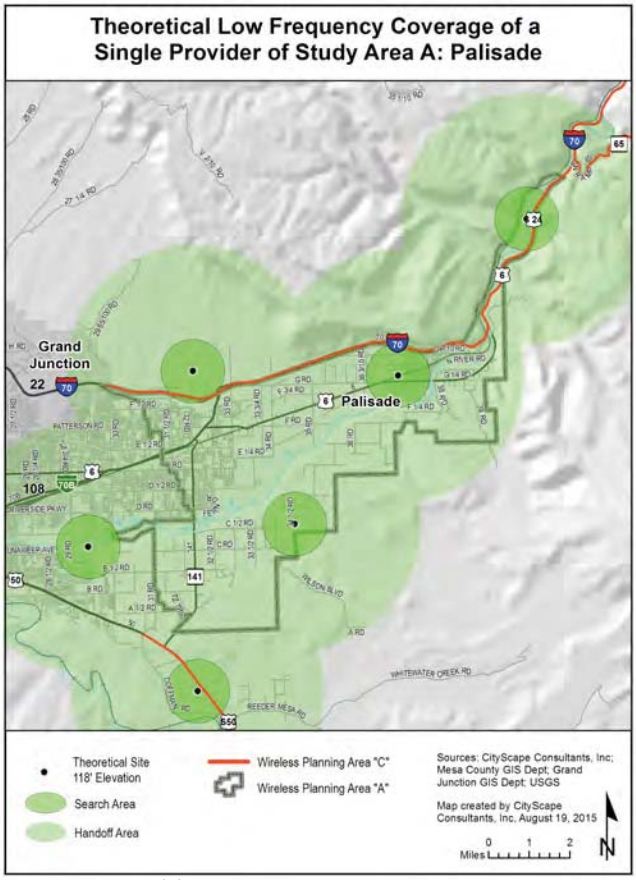


Figure 22: Theoretical Low Frequency Coverage

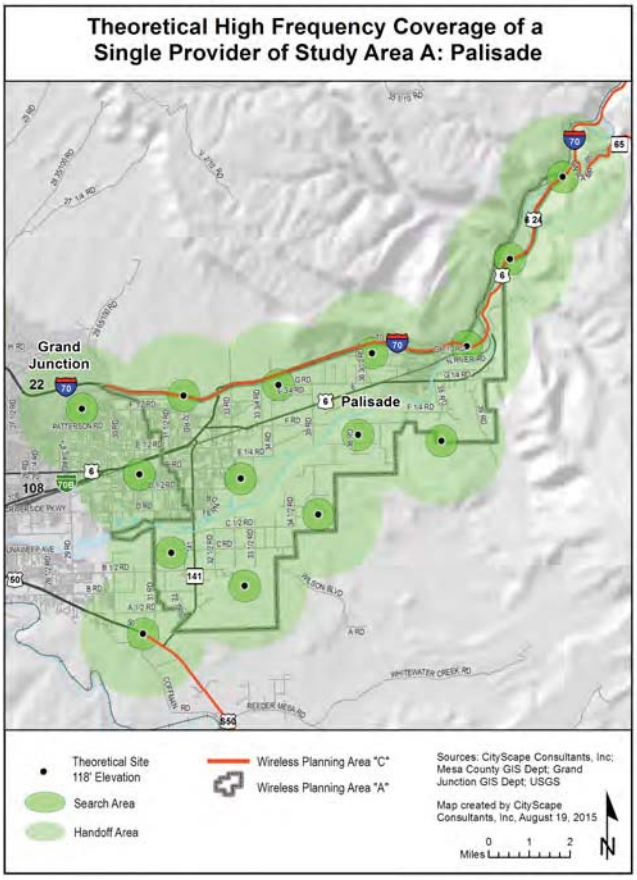


Figure 23: Theoretical High Frequency Coverage

Palisade Existing Antenna Locations

There are 12 transmission equipment facilities in and around the Palisade Study Area. Two-thirds of these are located within a 1.5 mile perimeter of the actual study area. These outlying sites are either in the 201 Persigo Boundary or along I-70, Highway 6 or Highway 50. Three of the four sites within the Palisade Study Area are near the western boundary in close proximity to the 201 Boundary. Only one site (site 6) is not in either of these vicinities.. This pattern of deployment is very common for the industry. The greatest concentration of towers and base stations are closer to the urban area along the major transportation networks.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	3	5	Eligible Base Station with PWSF	0	1
Non Eligible Tower with PWSF	0	0	Non Eligible Base Station with PWSF	0	0
Eligible Tower with no PWSF	0	0	Eligible Base Station with no PWSF	0	0
Non Eligible Tower with no PWSF	0	1	Non Eligible Base Station with no PWSF	0	1
Proposed Eligible Tower	1	0	Proposed Eligible Tower	0	0
Total	**4**	**6**	**Total**	**0**	**2**
Site Numbers in the Palisade Study Area: 6, 60, 77, 128					
Site Numbers within the 1.5 mile perimeter of the Palisade Study Area: 5, 48, 49, 59, 67, 68, 87, 132					

Table 12: Summary of Existing and Proposed Transmission Equipment

Figure 24 identifies the location of the sites listed in Table 12 above and are represented by:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the appropriate local government agency.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the appropriate local government agency).
- Orange dot - Tower or base station that has either been approved but not yet built; or is undergoing review at the time of this publication.

Figure 24: Existing Antenna Locations

Palisade Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 25 illustrates current theoretical coverage for one service provider operating in the low or high frequency assuming they had equipment on each inventoried facility. Figure 26 shows how population growth and technology changes will affect the current coverage model shown in Figure 25.

Both composite maps have included the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation in both figures is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

Figures 25 and 26 identify the location of the inventory sites categorized as follows:

- Black dot - Eligible towers or base stations with PWSF
- ★ Black star - Non eligible towers or base stations without PWSF

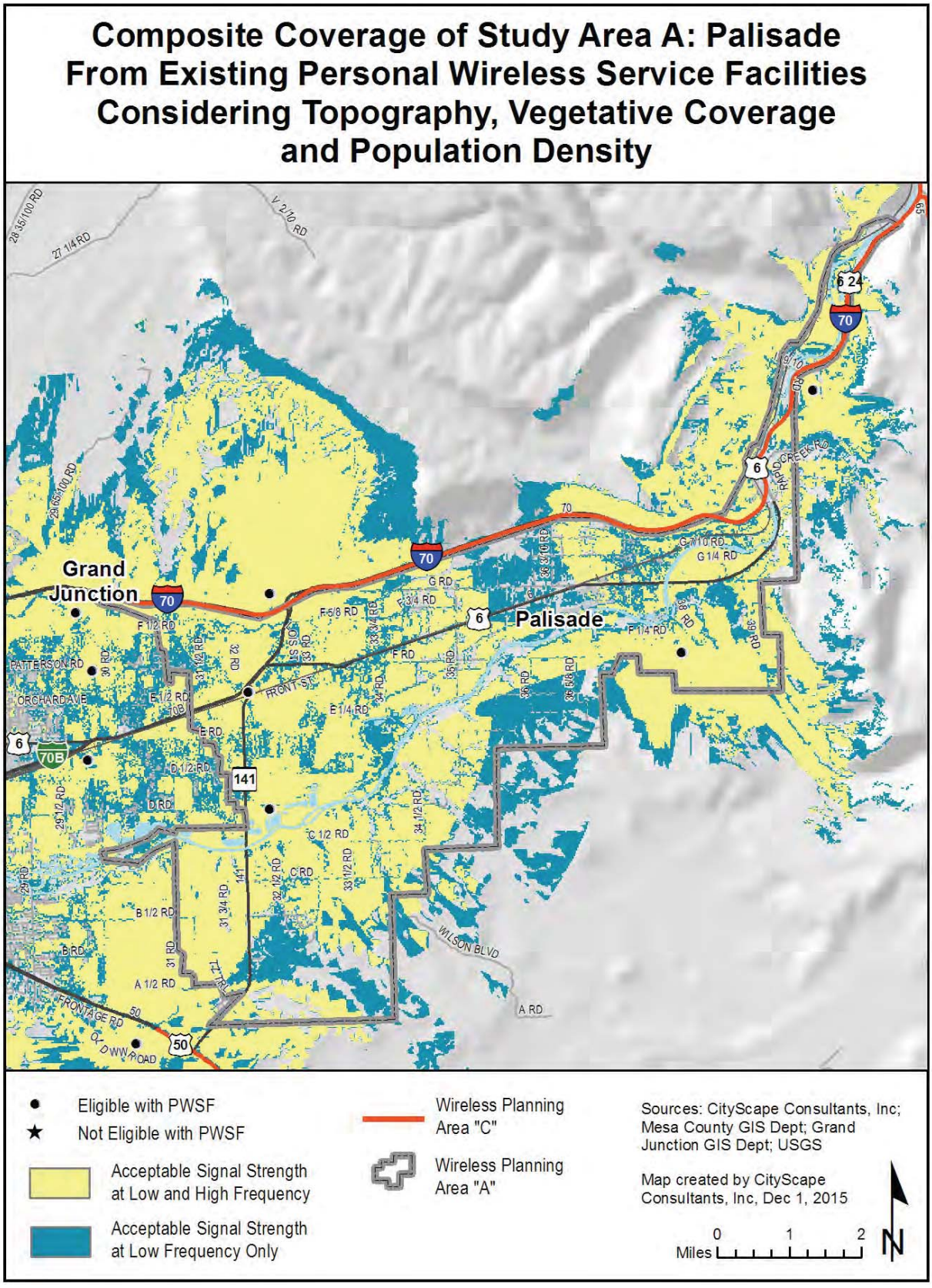


Figure 25: Current Potential Coverage

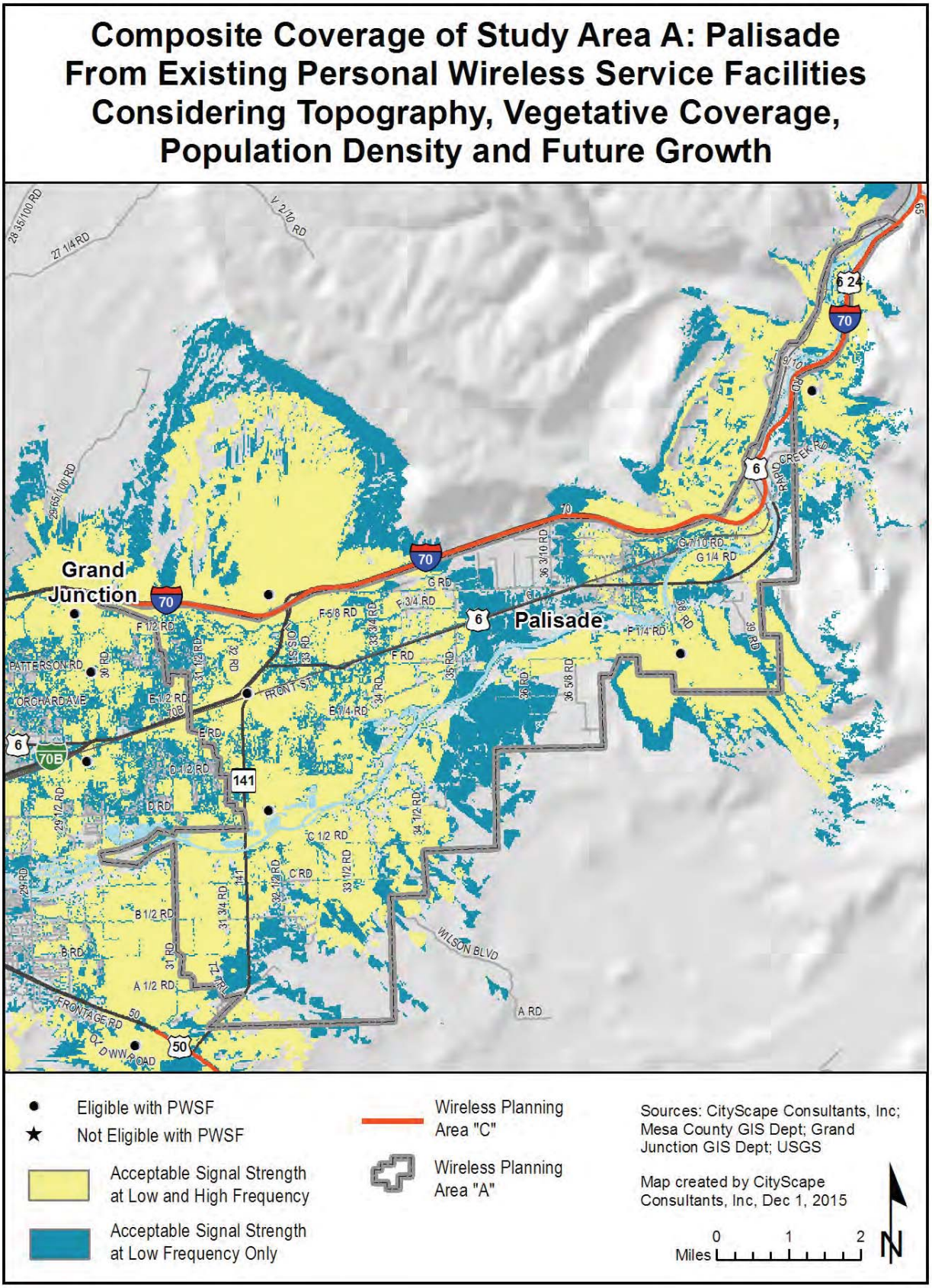


Figure 26: Current Potential Coverage Including Future Growth

Palisade Estimation of Future Antenna Sites

Due to the rural characteristics of the Palisade Study Area, CityScape estimates that about six new towers or base stations will be needed over the next ten to fifteen years located along the corridors of I-70, Highway 141 and Highway 50. The fill-in map, shown in Figure 27, includes the six new sites which will provide almost complete coverage for the Palisade Study Area.

These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement throughout the study area and the number of calls a base station can service at any given time. The projections consider coverage, capacity, and broadband network objectives and take into consideration terrain, population and proposed maximum infrastructure height variables. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period. It should also be noted that even with this increase in new facilities, some areas within the study area will still be underserved due to the terrain and to the rural characteristics of portions of the study area.

CityScape has reviewed the gaps in network coverage in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

Figure 27 indicates how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 13 identifies potential public property fill-in sites. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
Q	Colorado Department of Highways	Palisade	816 35 8/10 Road	2937-063-00-924	10.241	Not Determined
R1	Town of Palisade	Palisade	175 E Third Street	2937-091-04-941	0.95	Not Determined
R2	Town of Palisade	Palisade	120 W Eighth Street	2937-093-36-941	2.476	Not Determined
R3	Town of Palisade	Palisade	571 W Fifth Street	2937-093-00-940	2.875	Not Determined
R4	Town of Palisade	Palisade	711 Iowa Avenue	2937-093-37-943	3.189	Not Determined
S	East Orchard Fire Protection District	Palisade	544 35 1/2 Road	2941-084-00-944	1.108	Not Determined

Table 13: Palisade Potential Fill-In Public Properties

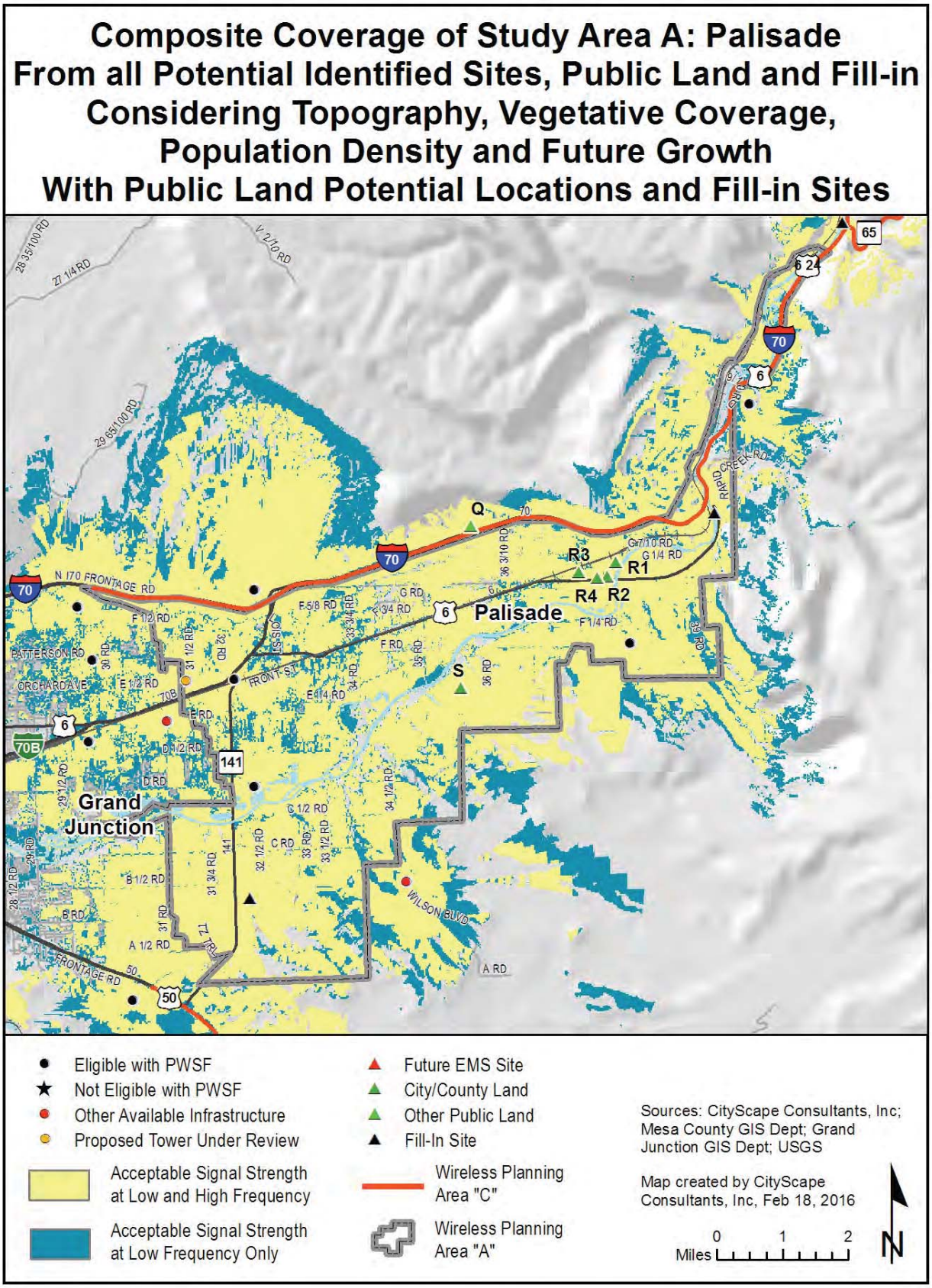


Figure 27: Coverage with Future Fill-In

DeBeque

Study Area A: DeBeque

CHARACTERISTICS:

- Rural
- 30.34 Square Miles
- 2010 Population Estimate 808
- 2030 Population Estimate 1,096

DeBeque Theoretical Root Mean Square Maps

The following maps represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas.. Figure 28 illustrates that three towers or base stations equally distributed throughout the DeBeque Study Area would provide complete low frequency coverage to the defined study area. Figure 29 illustrates nine locations would be needed to provide complete high frequency coverage to the same geographic area.

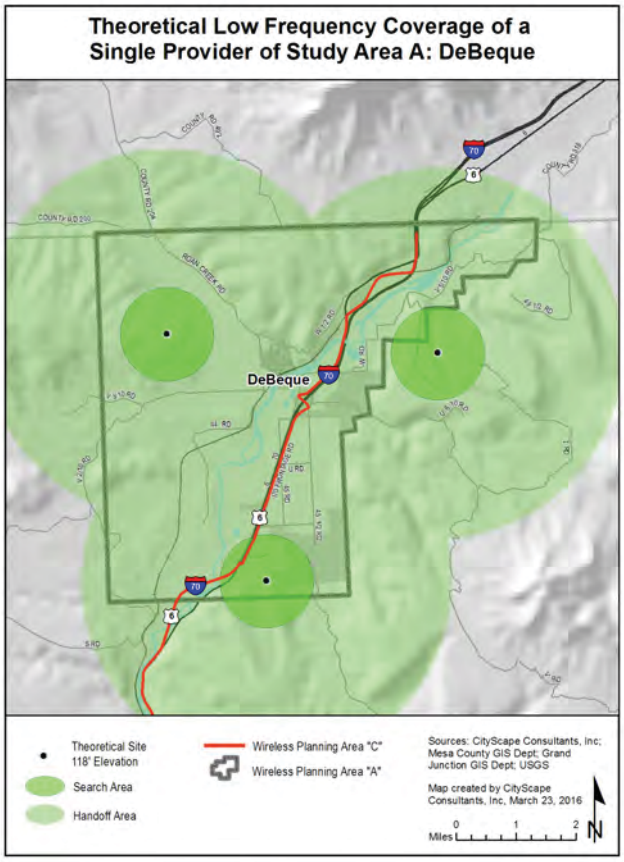


Figure 28: Theoretical Low Frequency Coverage

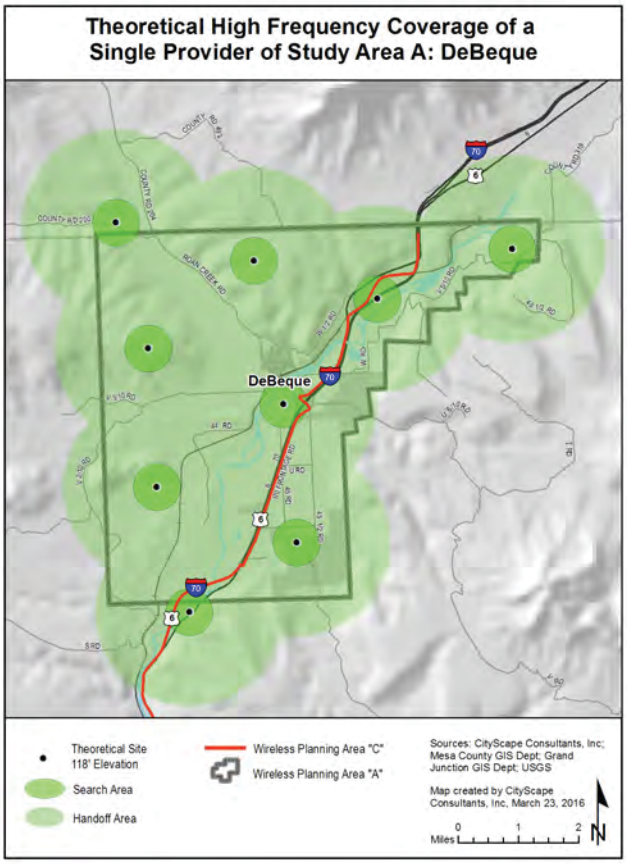


Figure 29: Theoretical High Frequency Coverage

DeBeque Existing Antenna Locations

Of the three geographic regions included in Study Area A the DeBeque Study Area is the least populated. There are two equipment communication facilities within the DeBeque Study Area and both of the towers are equipped with PWSF. Both towers are located parallel to I-70 with the intent of serving that corridor.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	2	0	Eligible Base Station with PWSF	0	0
Non Eligible Tower with PWSF	0	0	Non Eligible Base Station with PWSF	0	0
Eligible Tower with no PWSF	0	0	Eligible Base Station with no PWSF	0	0
Non Eligible Tower with no PWSF	0	0	Non Eligible Base Station with no PWSF	0	0
Proposed Eligible Tower	0	0	Proposed Eligible Tower	0	0
Total	**2**	**0**	**Total**	**0**	**0**
Site numbers in the DeBeque Study Area: 1, 2					
Site numbers within the 1.5 mile perimeter of the DeBeque Study Area: None					

Table 14: Summary of Existing and Proposed Transmission Equipment

Figure 30 identifies the location of the sites listed in Table 14 above and are represented by:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the appropriate local government agency.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the appropriate local government agency).
- Orange dot - Tower or base station that has either been approved but not yet built; or is undergoing review at the time of this publication.

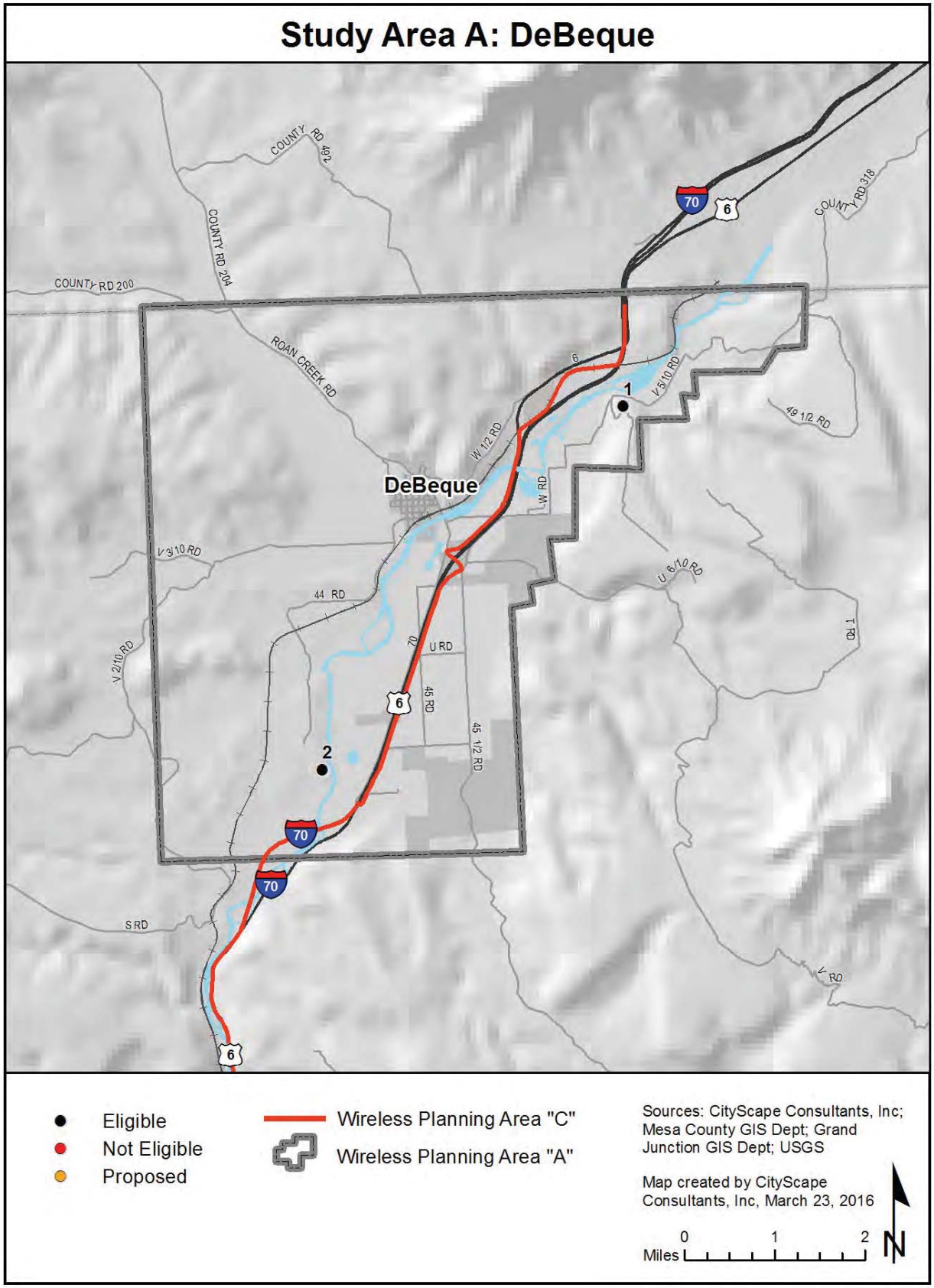


Figure 30: Existing Antenna Locations

DeBeque Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations

Figure 31 illustrates current theoretical coverage for one service provider operating in the low or high band frequency assuming they had equipment on each facility. Figure 32 shows how population growth and technology changes will affect the current coverage model shown in Figure 31.

Both composite maps have included the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation in both figures is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

Figures 31 and 32 identify the location of the inventory sites categorized as follows:

- Black dot - Eligible towers or base stations with PWSF
- ★ Black star - Non eligible towers or base stations without PWSF

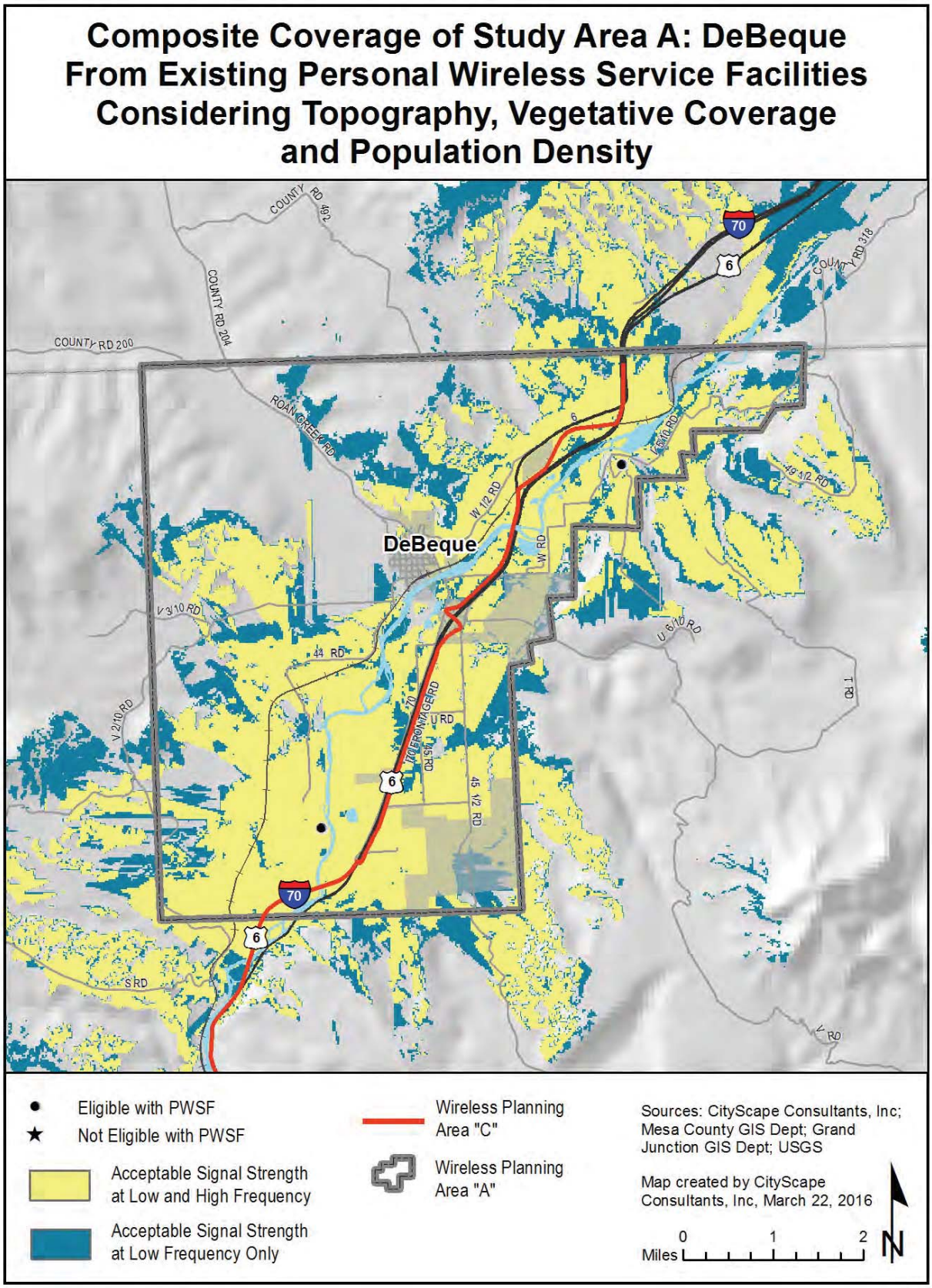


Figure 31: Current Potential Coverage

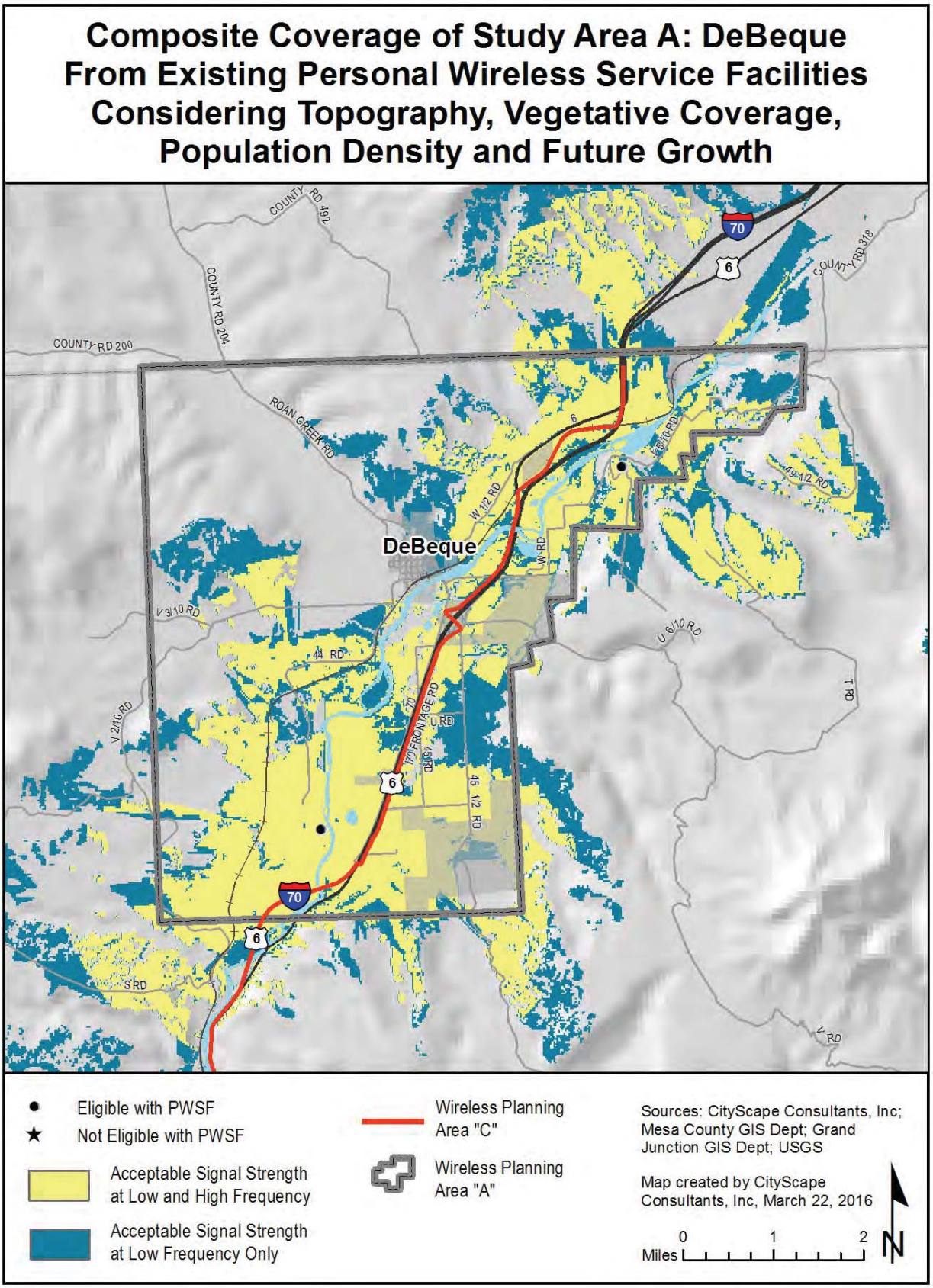


Figure 32: Current Potential Coverage Including Future Growth

DeBeque Estimation of Future Antenna Sites

Due to the rural characteristics of the DeBeque Study Area, CityScape estimates that approximately three new sites will be needed in the next ten to fifteen years: one along the I-70 corridor, one in the Town of DeBeque and one in the northwest quadrant of the study area. It is likely that the I-70 site will be constructed first, with the other two sites possibly being added in the distant future. The fill-in map in Figure 33 illustrates great improvement to the I-70 corridor coverage with one new site and almost complete coverage for the study area with the construction of all three sites.

These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement throughout the study area and the number of calls a base station can service at any given time. The projections consider coverage, capacity, and broadband network objectives and take into consideration terrain, population and proposed maximum infrastructure height variables. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period. It should also be noted that even with this increase in new facilities, some areas within the study area will still be underserved due to the terrain and to the rural characteristics of the study area.

CityScape has reviewed the gaps in network coverage in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

Figure 33 indicates how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 15 identifies potential public property fill-in sites. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
A	Joint School District 49	DeBeque		2445-213-00-942	20.575	Not Determined
B1	DeBeque Fire Protection District	DeBeque	4580 I70 Frontage Road	2445-274-00-944	5.86	Not Determined
B2	Town of DeBeque	DeBeque	414 Rouse Avenue	2445-272-00-943	61.767	Not Determined

Table 15: DeBeque Potential Fill-In Public Properties

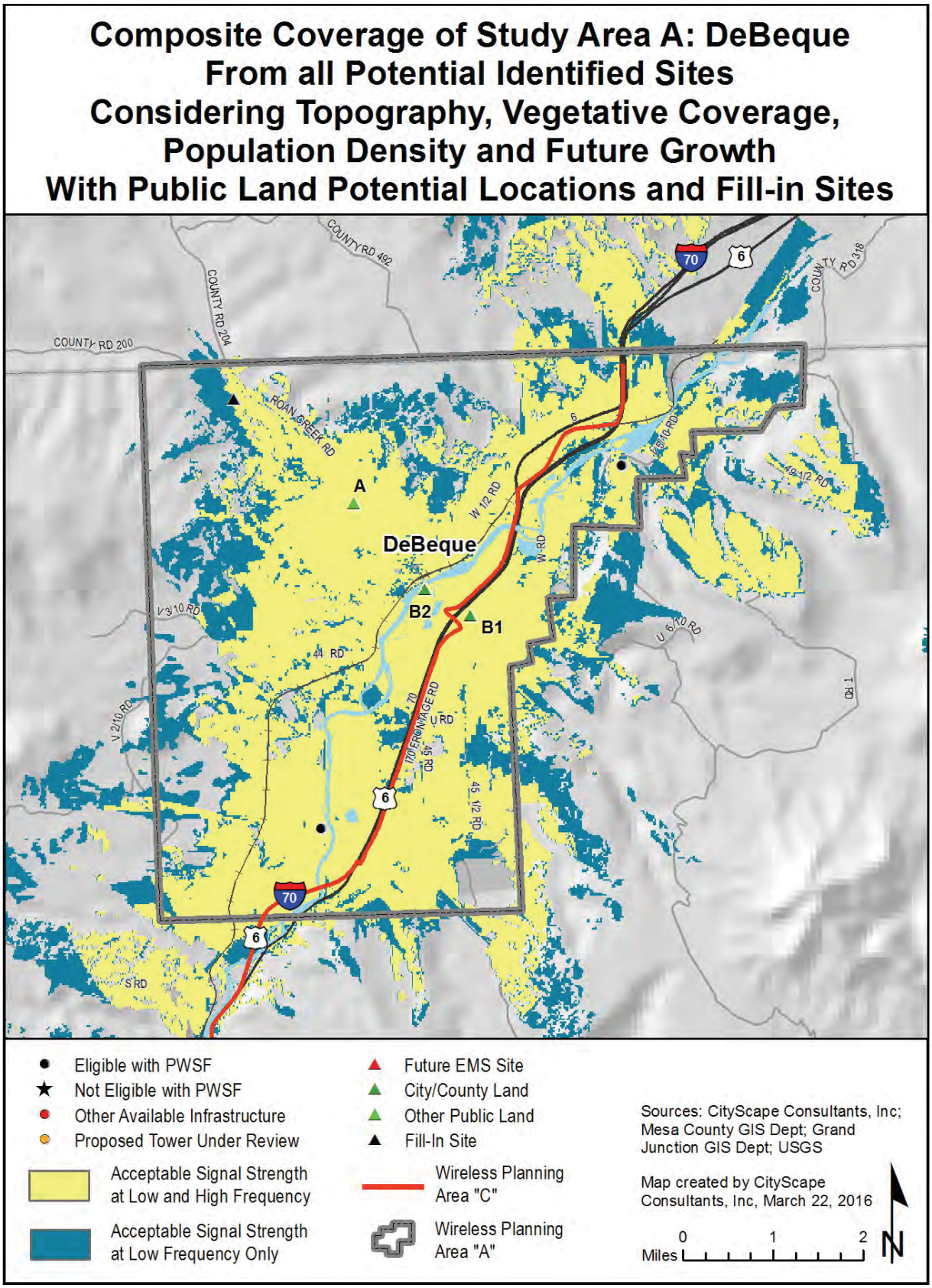


Figure 33: Coverage with Future Fill-In

Glade Park

Study Area B: Glade Park

CHARACTERISTICS:

- Undeveloped
- 387.86 Square Miles
- 2010 Population Estimate 1,664
- 2030 Population Estimate 1,956

Glade Park Theoretical Root Mean Square Maps

The following maps represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas.

Figure 34 illustrates that 26 towers or base stations equally distributed throughout the Glade Park Study Area would provide complete low frequency coverage to the defined study area. Figure 35 illustrates that 89 locations would be needed to provide complete high frequency coverage to the same geographic area.

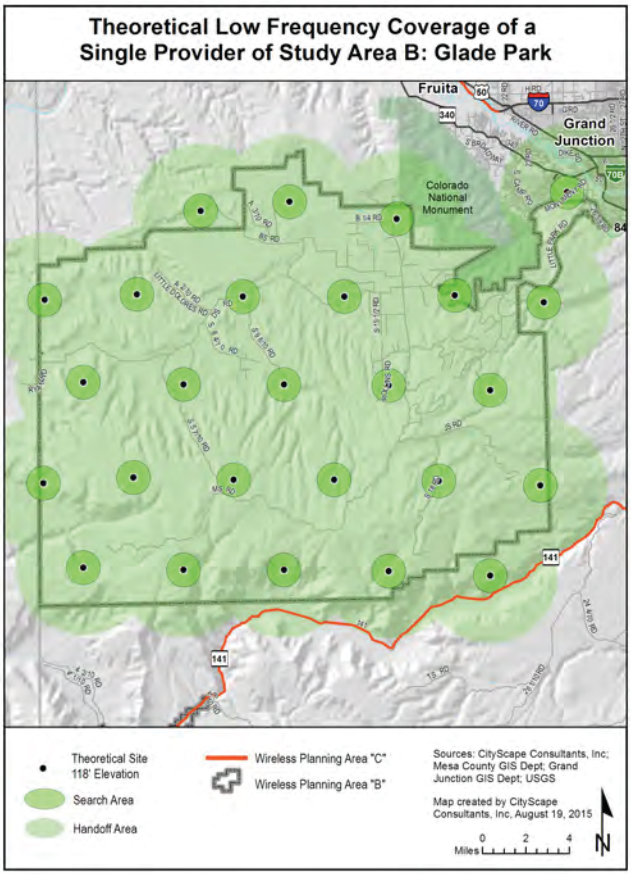


Figure 34: Theoretical Low Frequency Coverage

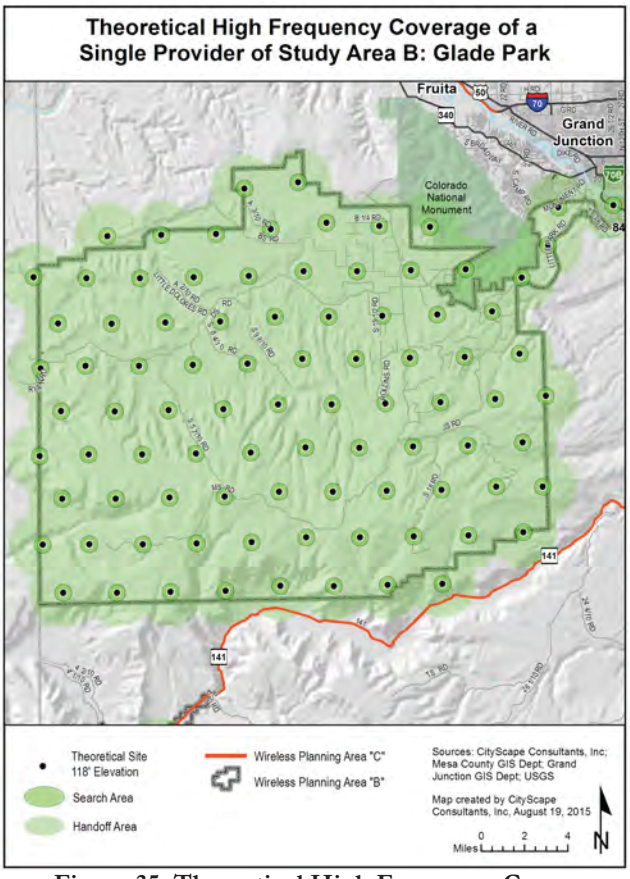


Figure 35: Theoretical High Frequency Coverage

Glade Park Existing Antenna Locations

There are no towers or base stations within the Glade Park Study Area. All 26 sites listed below are outside the study area and within either the Persigo 201 Boundary or in a tower cluster located on Blackridge above the Colorado National Monument. The low population density and seasonal tourist and recreational visitors do not meet industry criteria for additional infrastructure within the study area at this time.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	0	4	Eligible Base Station with PWSF	0	1
Non Eligible Tower with PWSF	0	0	Non Eligible Base Station with PWSF	0	0
Eligible Tower with no PWSF	0	1	Eligible Base Station with no PWSF	0	0
Non Eligible Tower with no PWSF	0	21	Non Eligible Base Station with no PWSF	0	2
Proposed Eligible Tower	0	0	Proposed Base Station	0	0
Total	**0**	**26**	**Total**	**0**	**3**
Site Numbers in the Glade Park Study Area: None					
Site Numbers within the 1.5 mile perimeter of the Glade Park Study Area: 71-75, 81-85, 88-102, 141					

Table 16: Summary of Existing and Proposed Transmission Equipment

Figure 36 identifies the location of the sites listed in Table 16 above and are represented by:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the appropriate local government agency.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the appropriate local government agency).
- Orange dot - Tower or base station that has either been approved but not yet built; or is undergoing review at the time of this publication.

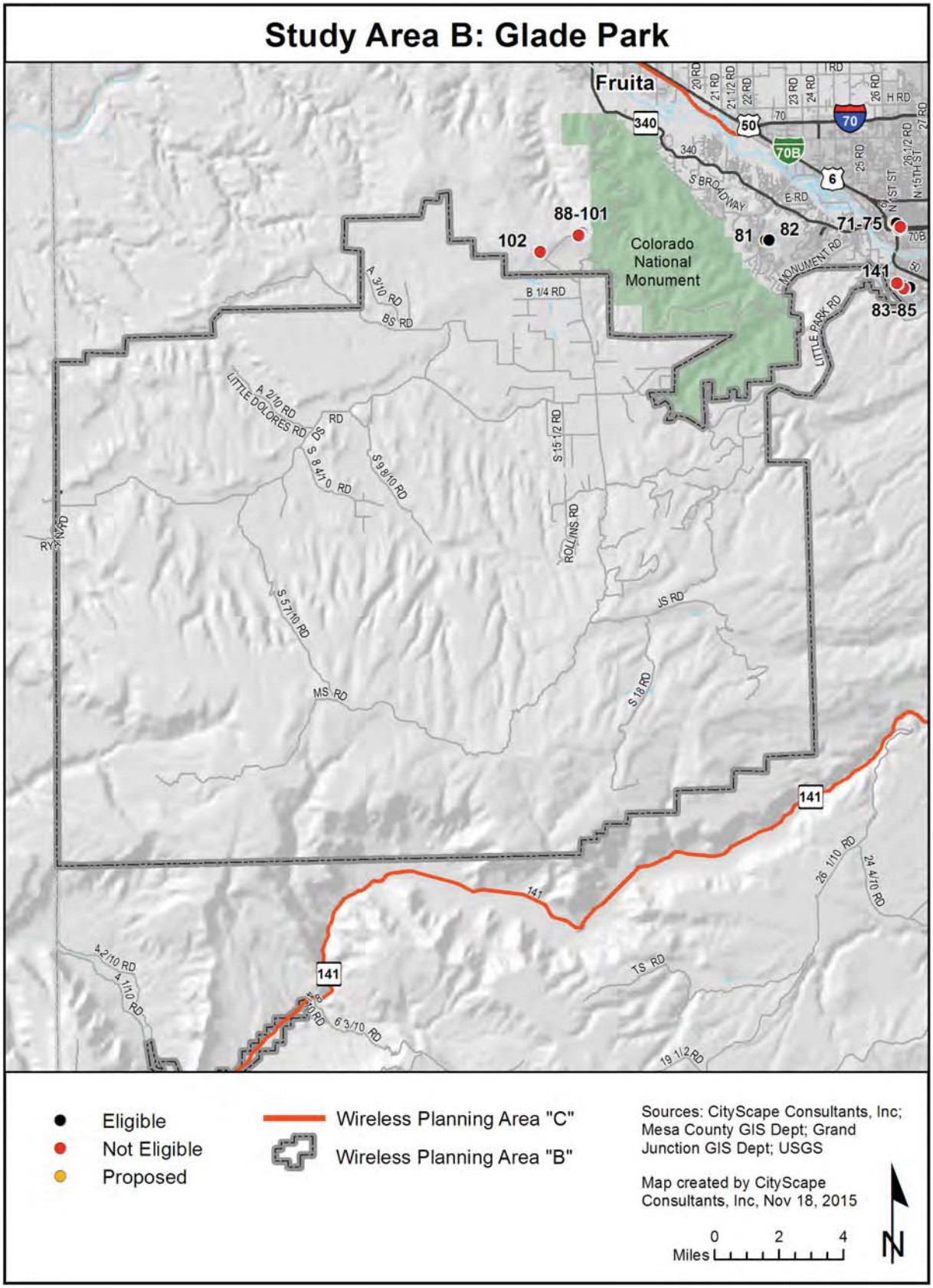


Figure 36: Existing Antenna Locations

Glade Park Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 37 illustrates current theoretical coverage for one service provider operating in the low or high frequency assuming they had equipment on each facility. Figure 38 shows how population growth and technology changes will affect the current coverage model shown in Figure 37. There appears to be very little difference between Figures 37 and 38 due to the scale of the map and the height of the existing tower.

Both composite maps have included the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation in both figures is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

Figures 37 and 38 identify the location of the inventory sites categorized as follows:

- Black dot - Eligible towers or base stations with PWSF
- ★ Black star - Non eligible towers or base stations without PWSF

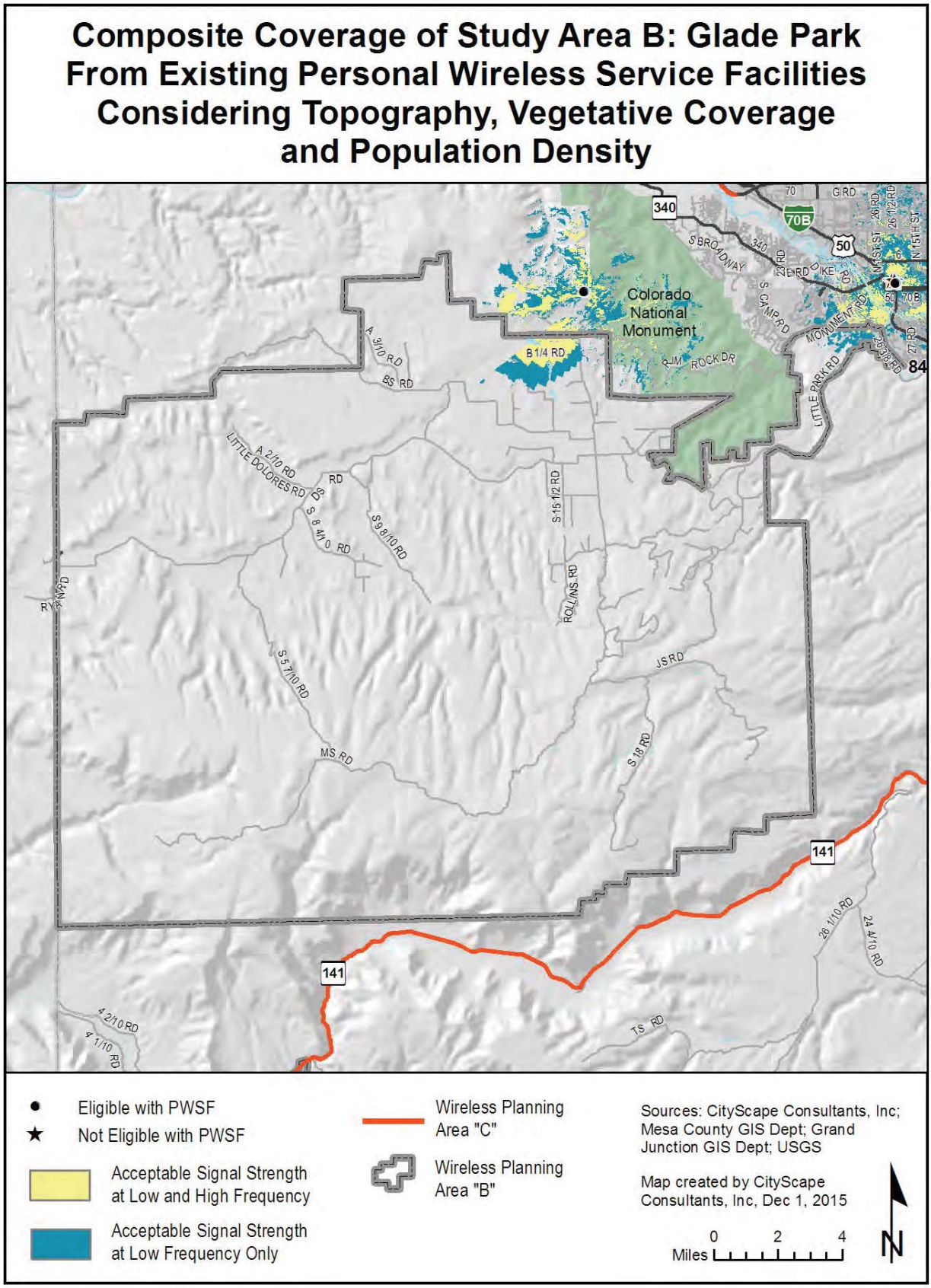


Figure 37: Current Potential Coverage

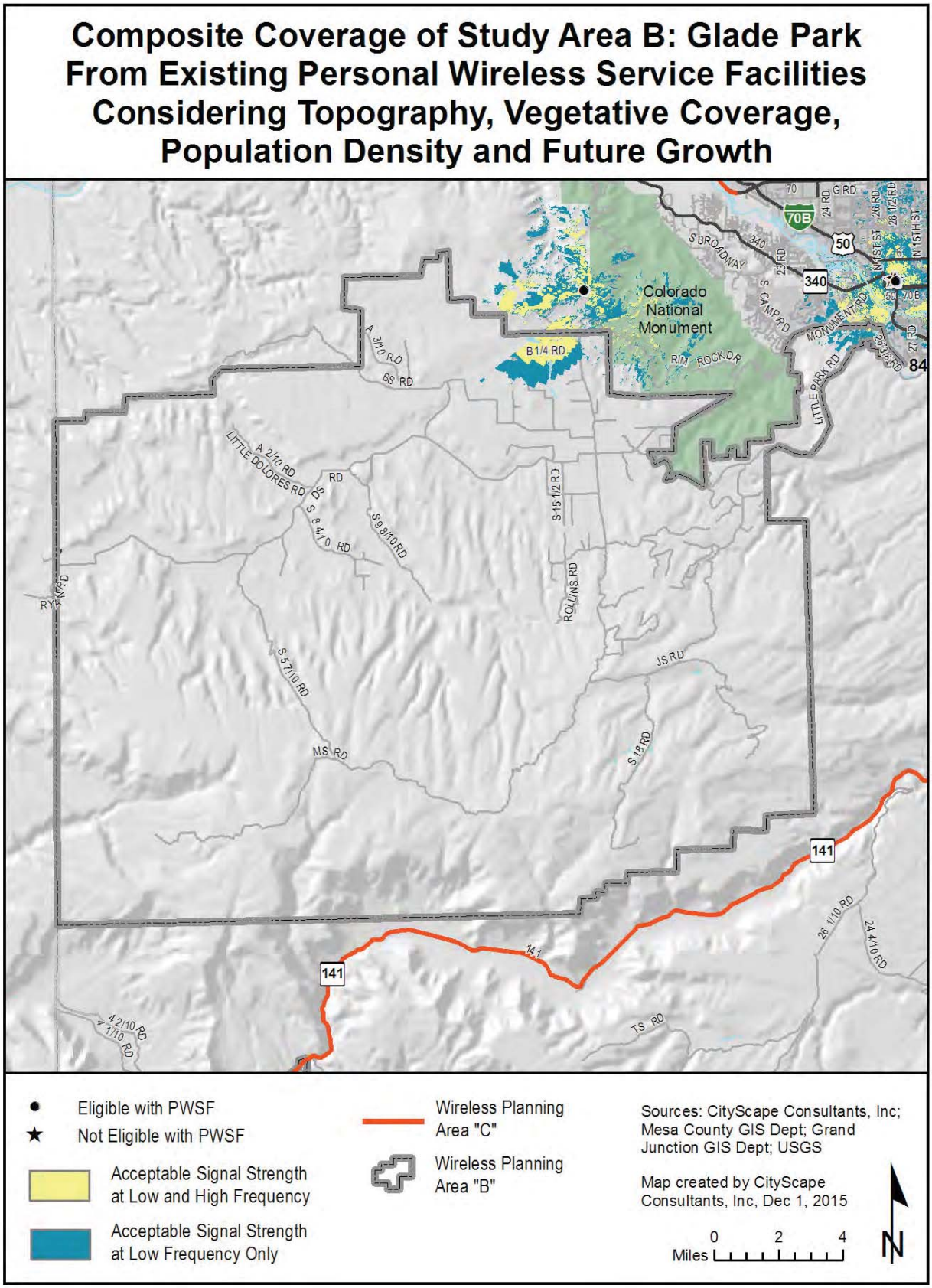


Figure 38: Current Potential Coverage Including Future Growth

Glade Park Estimation of Future Antenna Sites

CityScape understands the residents' and visitors' desire to have service coverage in the Glade Park Study Area. A study was recently completed to identify possible locations for additional emergency services infrastructure. Three of these sites are located in this study area and have been added to the fill-in map in Figure 39 and are identified by a red triangle. CityScape has identified an additional six locations that would maximize the effectiveness of new infrastructure but anticipates that only one of those facilities (site T) may be constructed over the next ten to fifteen years. These fill-in sites are shown with green and black triangles. The majority of the population lives in the Northwest corner of the study area and services for these residents could be improved by a facility in that area. However, given the sparsity of the subscribers and the division between multiple providers makes this area too small of a footprint for most major service providers to justify a new facility. Due to the unique circumstances found in this study area, CityScape recommends that residents and local government agencies work with the service providers to create a coordinated effort to develop new sites.

These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement throughout the study area and the number of calls a base station can service at any given time. The projections consider coverage, capacity, and broadband network objectives and take into consideration terrain, population and proposed maximum infrastructure height variables. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period. It should also be noted that even with this increase in new facilities, some areas within the study area will still be underserved due to the terrain and to the rural characteristics of the study area.

CityScape has reviewed the gaps in network coverage in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

Figure 39 indicates how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 17 identifies potential public property fill-in sites. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
T	County of Mesa	Glade Park	16430 DS Road	2959-243-02-932	2.089	Not Determined

Table 17: Glade Park Potential Fill-In Public Property

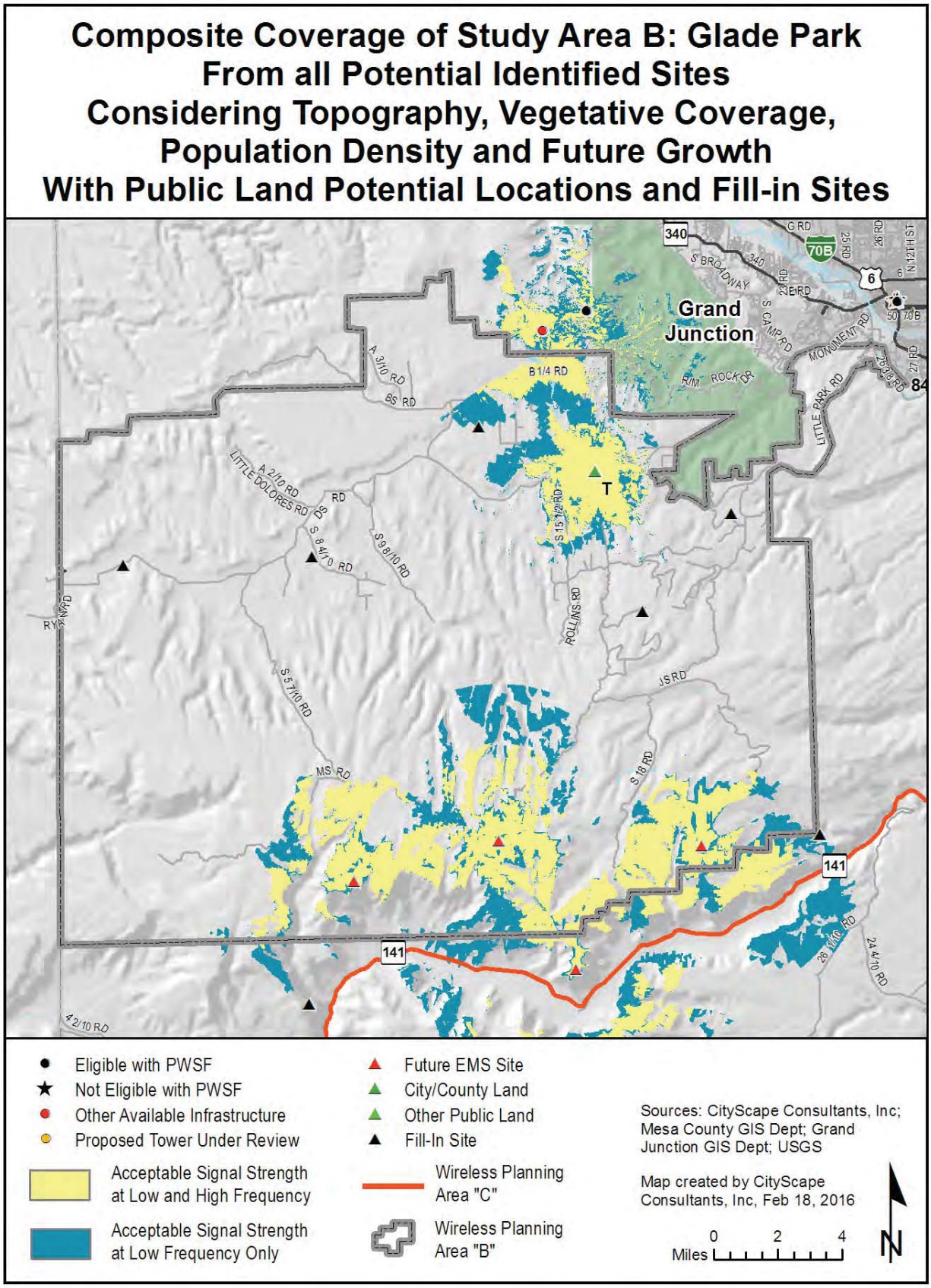


Figure 39: Coverage with Future Fill-In

Gateway

Study Area B: Gateway

CHARACTERISTICS:

- Undeveloped
- 3.69 Square Miles
- 2010 Population Estimate 142
- 2030 Population Estimate 342

Gateway Theoretical Root Mean Square Maps

The following maps represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas.

Figure 40 illustrates that two towers or base stations centrally located in the Gateway Study Area would provide complete low frequency coverage to the defined study area. Figure 41 illustrates that it would take four locations to provide complete high frequency coverage to the same geographic area.

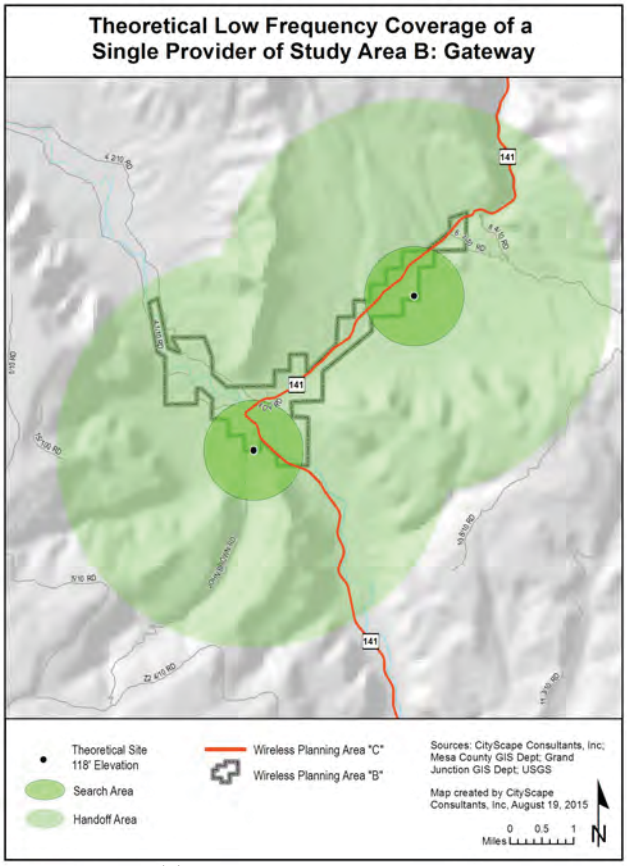


Figure 40: Theoretical Low Frequency Coverage

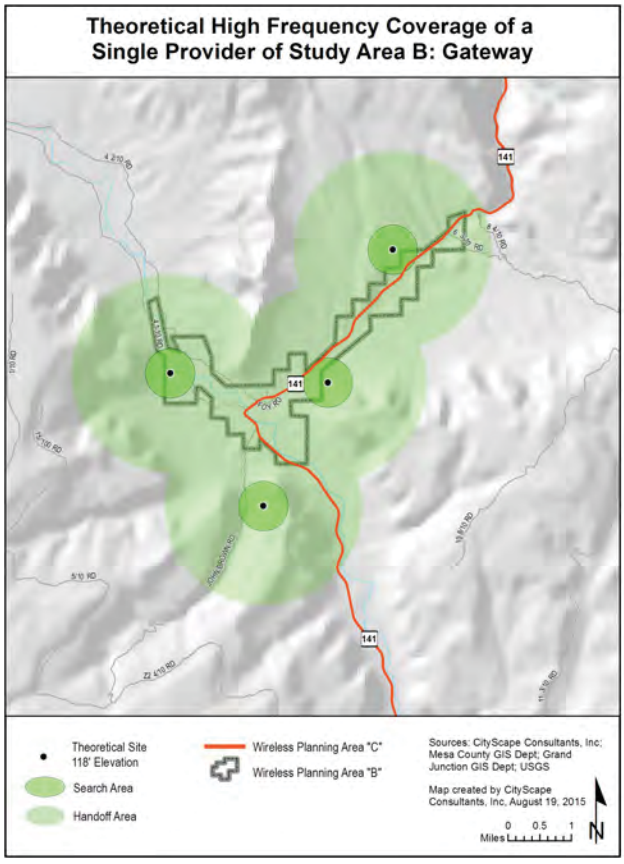


Figure 41: Theoretical High Frequency Coverage

Gateway Existing Antenna Locations

The Gateway Study Area has no communication equipment within the study boundary. There are three sites located to the west on Lee's Point which provide some service to Gateway and the Highway 141 corridor. Gateway, a remote, rural community, has a minimal subscriber base which explains the lack of wireless infrastructure in this region of the County. There is a resort located in Gateway which is likely the reason a PWSF was constructed on Lee's Point.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	0	0	Eligible Base Station with PWSF	0	0
Non Eligible Tower with PWSF	0	1	Non Eligible Base Station with PWSF	0	0
Eligible Tower with no PWSF	0	0	Eligible Base Station with no PWSF	0	0
Non Eligible Tower with no PWSF	0	2	Non Eligible Base Station with no PWSF	0	0
Proposed Eligible Tower	0	0	Proposed Eligible Base Station	0	0
Total	**0**	**3**	**Total**	**0**	**0**
Site numbers in the Gateway Study Area: None					
Site numbers within the 1.5 mile perimeter of the Gateway Study Area: 133-135					

Table 18: Summary of Existing and Proposed Transmission Equipment

Figure 42 identifies the location of the sites listed in Table 18 above and are represented by:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the appropriate local government agency.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the appropriate local government agency).
- Orange dot - Tower or base station that has either been approved but not yet built; or is undergoing review at the time of this publication.

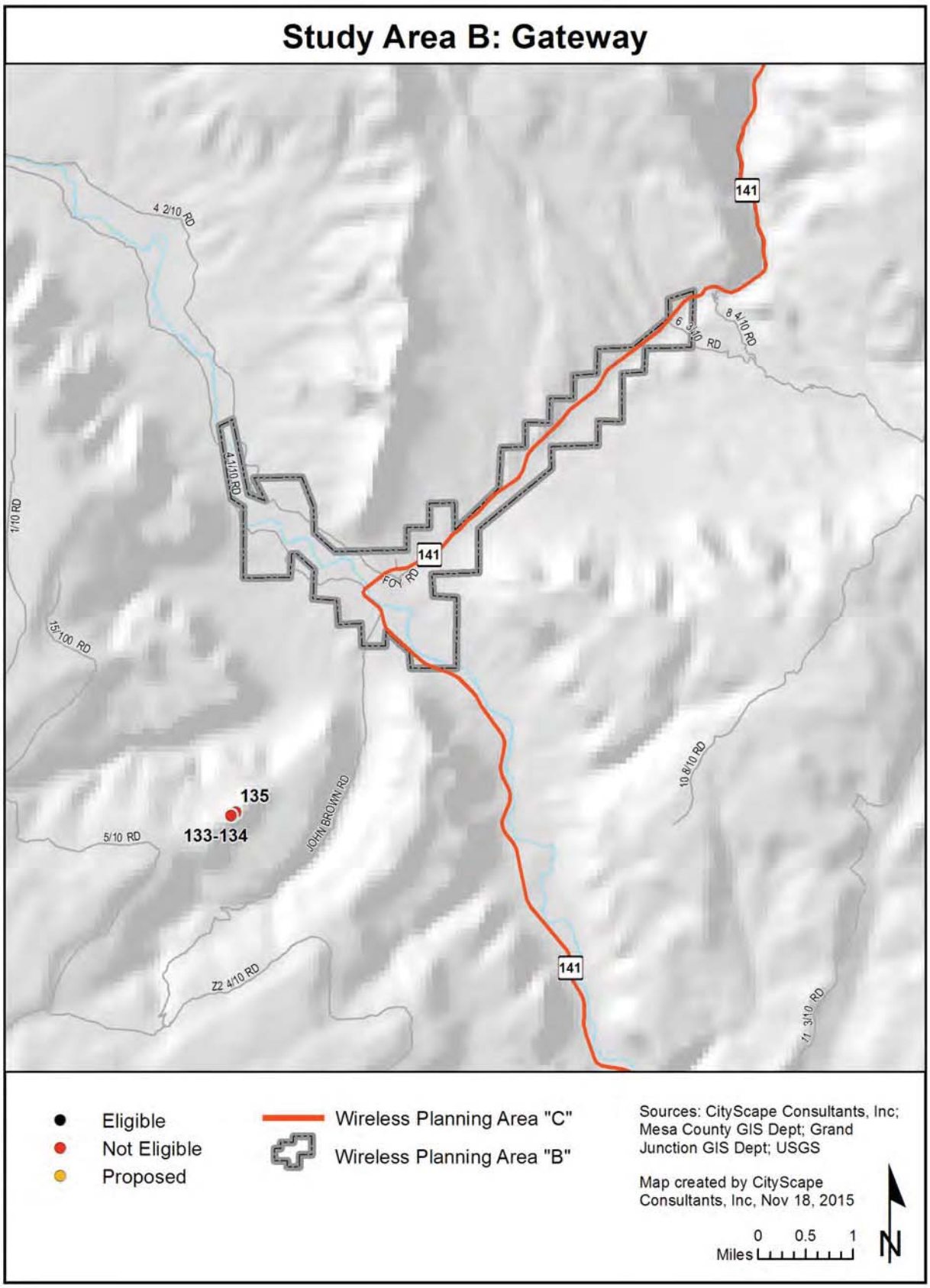


Figure 42: Existing Antenna Locations

Gateway Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 43 illustrates current and future theoretical coverage for one service provider operating in the low or high band frequency assuming they have equipment on each facility. This composite map includes the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown

Gateway Estimation of Future Antenna Sites

Due to the undeveloped characteristics of the Gateway rural community, CityScape estimates that only one to three new sites may be built over the next ten to fifteen years. Any sites built will parallel Highway 141. The most likely location for a new facility would be in or near the town, which would improve wireless access for the citizens, resort visitors and travelers on Highway 141.

These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement throughout the study area and the number of calls a base station can service at any given time. The projections consider coverage, capacity, and broadband network objectives and take into consideration terrain, population and proposed maximum infrastructure height variables Should all three projected structures be constructed, then all of the Gateway Study Area would have wireless access.

CityScape has reviewed the gaps in network coverage in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on

public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

Figure 43 indicates how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 19 identifies potential public property fill-in sites. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
X	Mesa County	Gateway	42700 Highway 141	3477-153-01-936	7.663	Not Determined

Table 19: Gateway Potential Fill-In Public Property

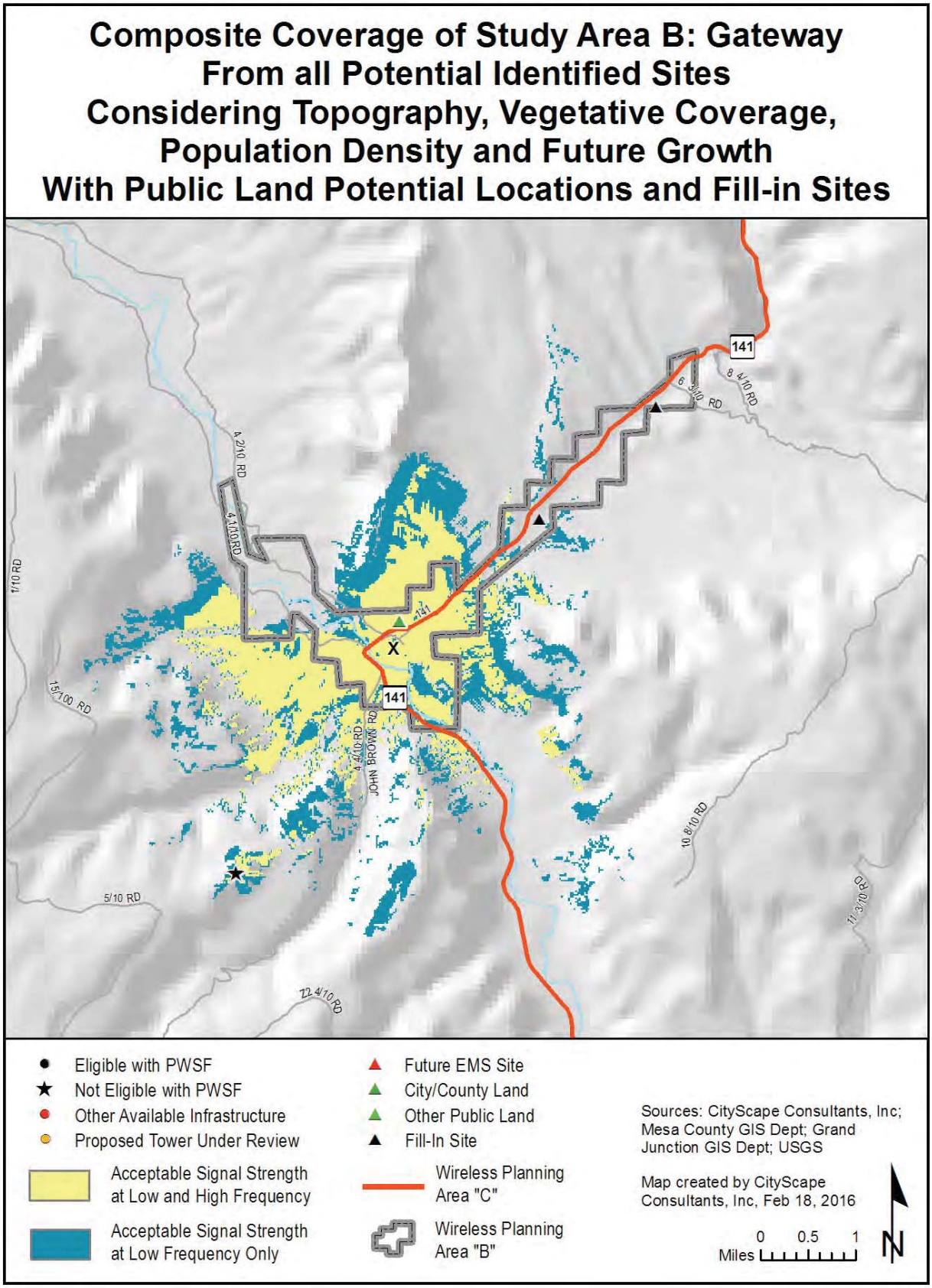


Figure 43: Coverage with Future Fill-In

Whitewater

Study Area B: Whitewater

CHARACTERISTICS:

- Rural/Undeveloped
- 49.49 Square Miles
- 2010 Population Estimate 1,864
- 2030 Population Estimate 2,391

Whitewater Theoretical Root Mean Square Maps

The following maps represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas.

Figure 44 illustrates that five towers or base stations equally distributed throughout the Whitewater Study Area would provide complete low frequency coverage to the defined study area. Figure 45 illustrates that 14 locations would be needed to provide complete high frequency coverage to the same geographic area.

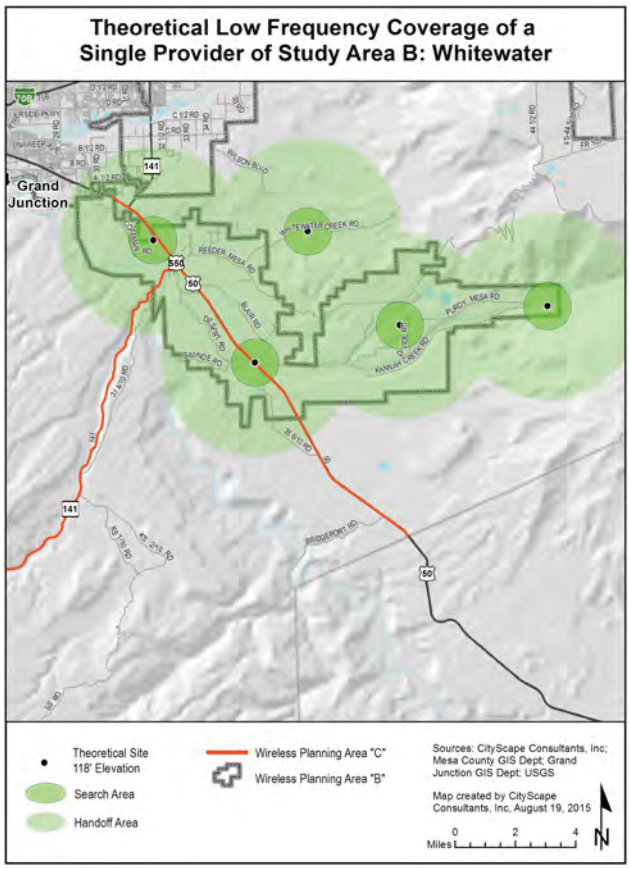


Figure 44: Theoretical Low Frequency Coverage

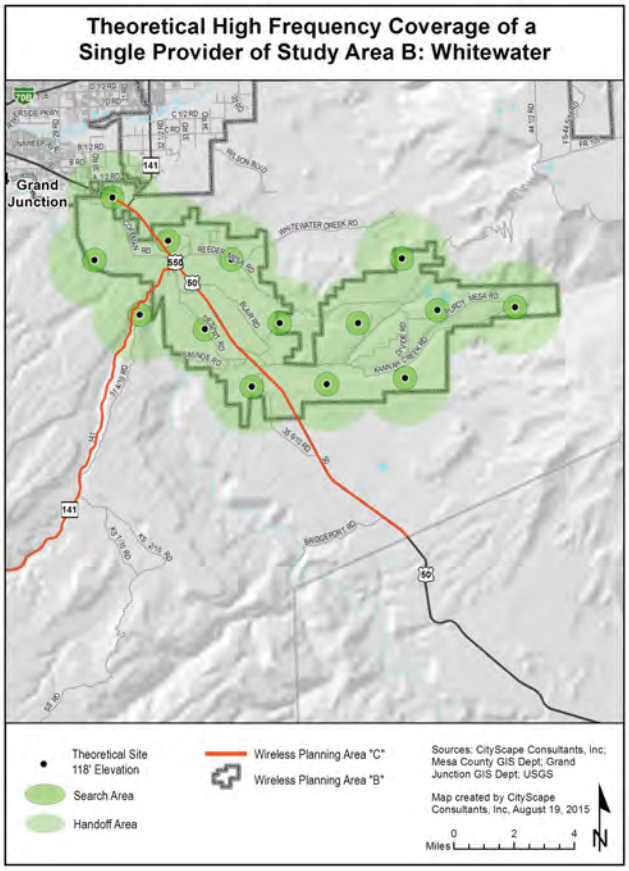


Figure 45: Theoretical Low Frequency Coverage

Whitewater Existing Antenna Locations

There are five communication facilities within the Whitewater Study Area located parallel to Highway 50. Only one of the three facilities is equipped with a PWSF. One additional facility is located west of the boundary area.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	1	0	Eligible Base Station with PWSF	0	0
Non Eligible Tower with PWSF	1	1	Non Eligible Base Station with PWSF	0	0
Eligible Tower with no PWSF	0	0	Eligible Base Station with no PWSF	0	0
Non Eligible Tower with no PWSF	3	0	Non Eligible Base Station with no PWSF	0	0
Proposed Eligible Tower	0	0	Proposed Eligible Base Station	0	0
Total	**5**	**1**	**Total**	**0**	**0**
Site numbers in the Whitewater Study Area: 87, 103, 104					
Site numbers within the 1.5 mile perimeter of the Whitewater Study Area: 86					

Table 20: Summary of Existing and Proposed Transmission Equipment

Figure 46 identifies the location of the sites listed in Table 20 above and are represented by:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the appropriate local government agency.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the appropriate local government agency).
- Orange dot - Tower or base station that has either been approved but not yet built; or is undergoing review at the time of this publication

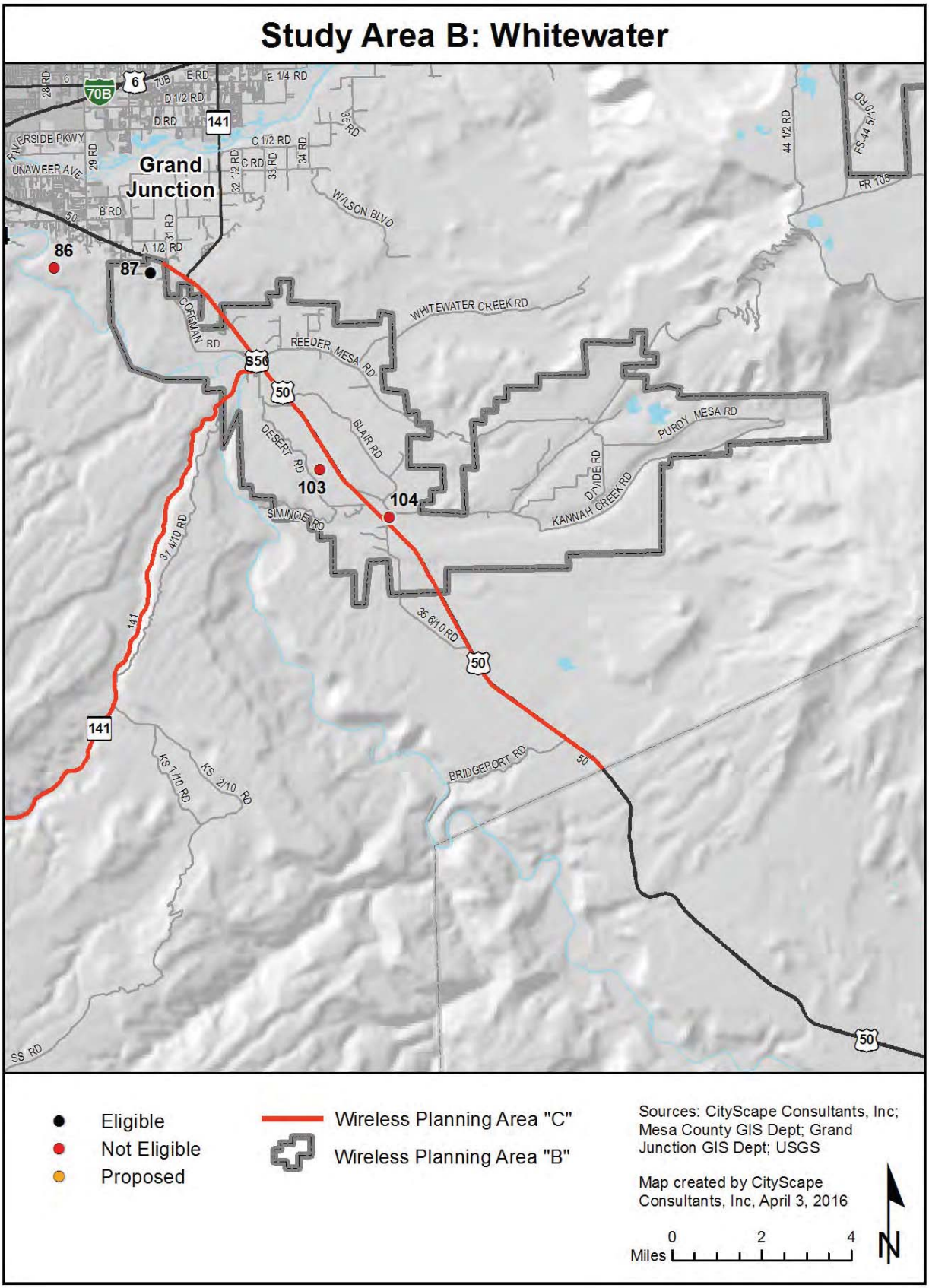


Figure 46: Existing Antenna Locations

Whitewater Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 47 illustrates current theoretical coverage for one service provider operating in the low or high frequency assuming they had equipment on each facility. Figure 48 shows how population growth and technology changes will affect the current coverage model shown in Figure 47.

Both composite maps include the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation in both figures is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

Figures 47 and 48 identify the location of the inventory sites categorized as follows:

- Black dot - Eligible towers or base stations with PWSF
- ★ Black star - Non eligible towers or base stations without PWSF

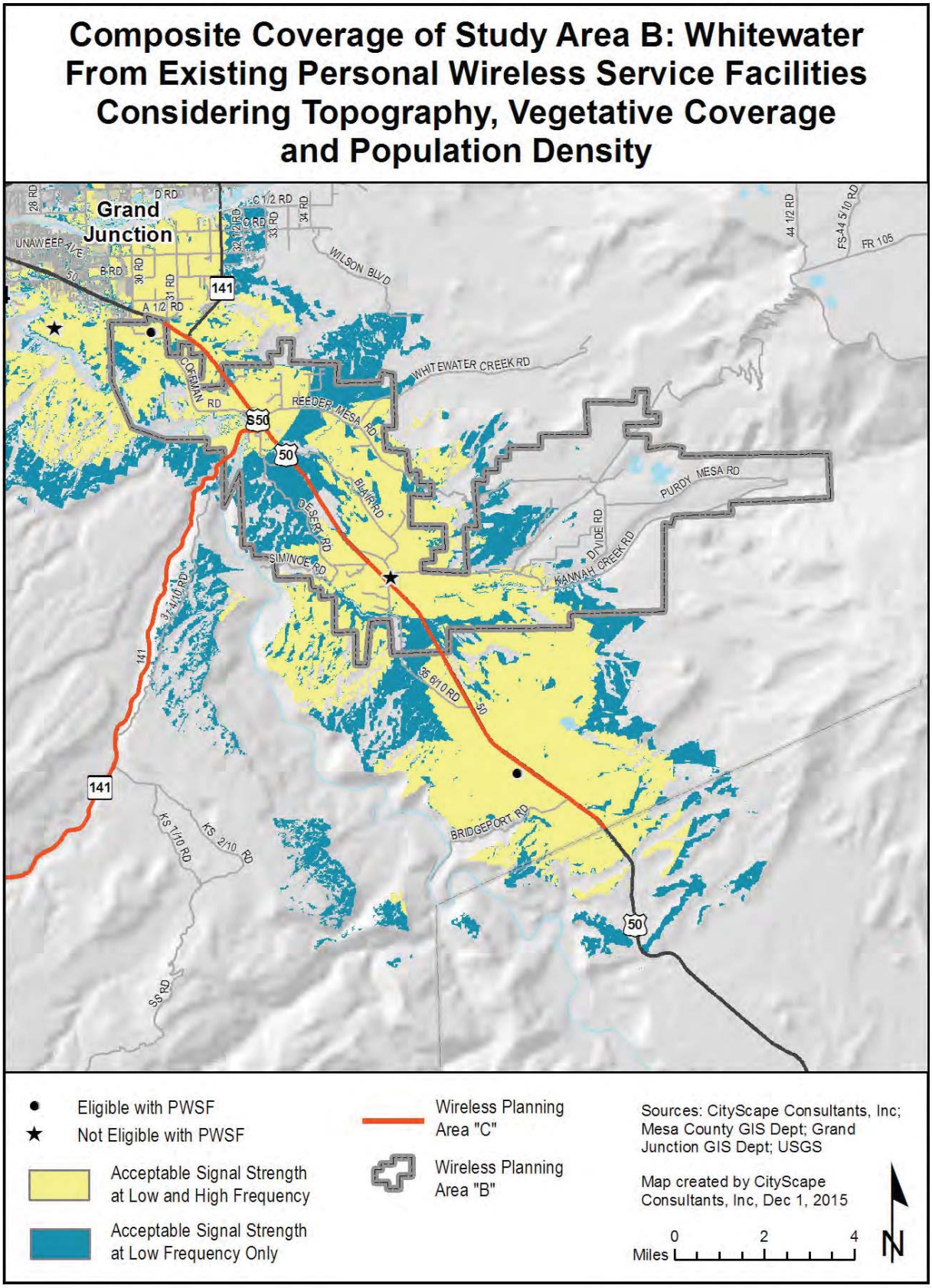


Figure 47: Current Potential Coverage

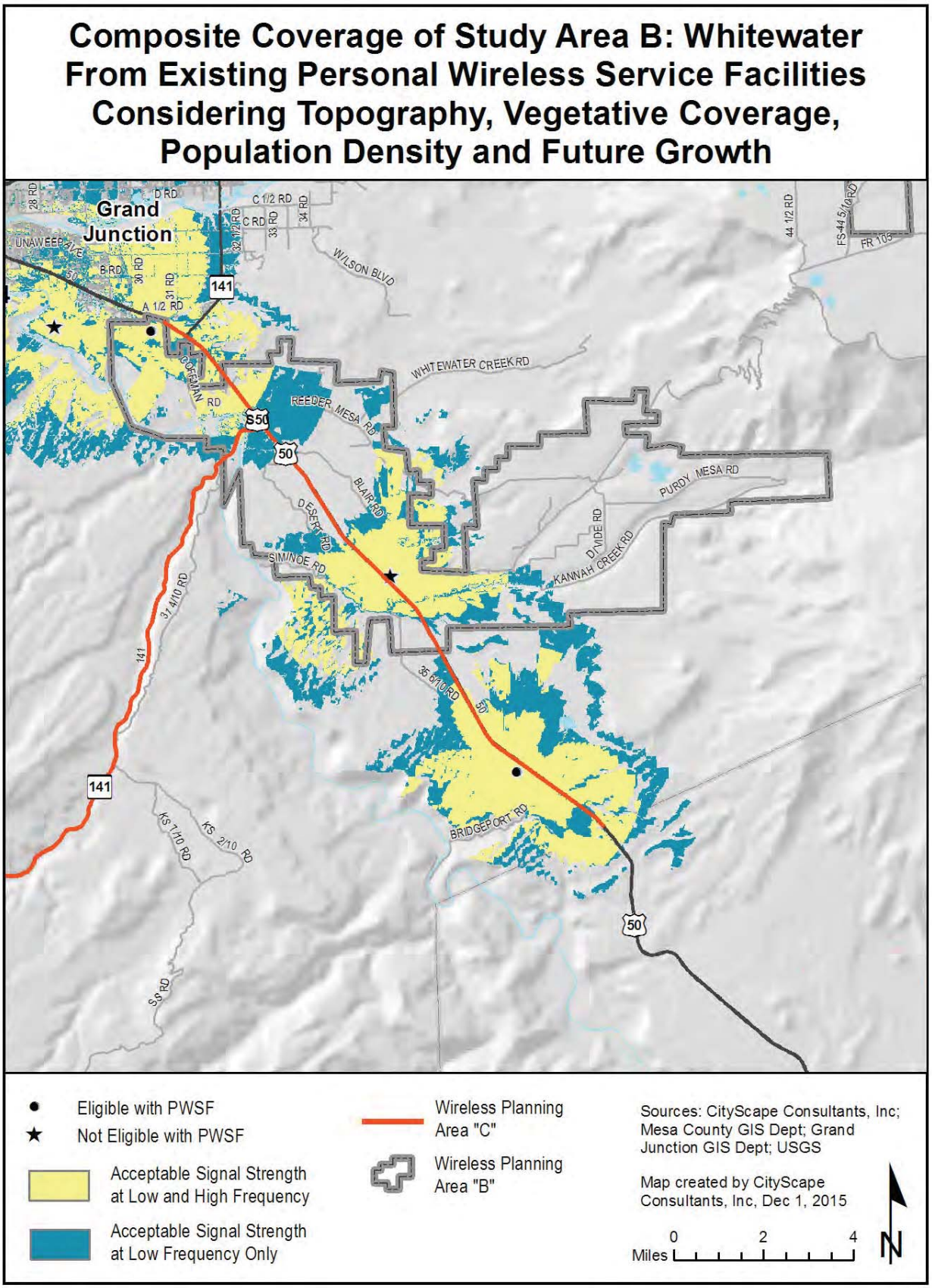


Figure 48: Current Potential Coverage Including Future Growth

Whitewater Estimation of Future Antenna Sites

The three existing towers in the Whitewater Study Area, if occupied by the same wireless service provider would offer very good service coverage along the Highway 50 corridor. CityScape has identified the need for four additional towers or base stations in this study area by 2030. Figure 49 illustrates three of the four sites turned on. In all likelihood, the first two sites added will be parallel to the highway.

These estimates are based on the expected changes in population density, subscriber base and usage, daily transient movement throughout the study area and the number of calls a base station can service at any given time. The projections consider coverage, capacity, and broadband network objectives and take into consideration terrain, population and proposed maximum infrastructure height variables. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period.

CityScape has reviewed the gaps in network coverage in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

Figure 49 indicates how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 21 identifies potential public property fill-in sites. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
U1	Mesa County	Whitewater	527 Desert Road	2967-231-00-939	116.554	Not Determined
U2	City of Grand Junction	Whitewater	33129 Mill Tailing Road	2967-243-00-944	138.554	Not Determined
V1	City of Grand Junction	Whitewater	2080 Purdy Mesa Road	2969-251-00-944	216.145	Not Determined
V2	City of Grand Junction	Whitewater	7630 Reeder Mesa Road	2969-242-00-948	1333.34	Not Determined
V3	City of Grand Junction	Whitewater	3330 Purdy Mesa Road	2971-363-00-941	47.659	Not Determined
W1	City of Grand Junction	Whitewater	3280 Purdy Mesa Road	2971-361-00-940	1057.746	Not Determined
W2	City of Grand Junction	Whitewater	8570 Kannah Creek Road	3199-051-00-944	20.48	Not Determined
W3	City of Grand Junction	Whitewater	9470 Kannah Creek Road	2937-334-00-941	26.649	Not Determined

Table 21: Whitewater Potential Fill-In Public Property

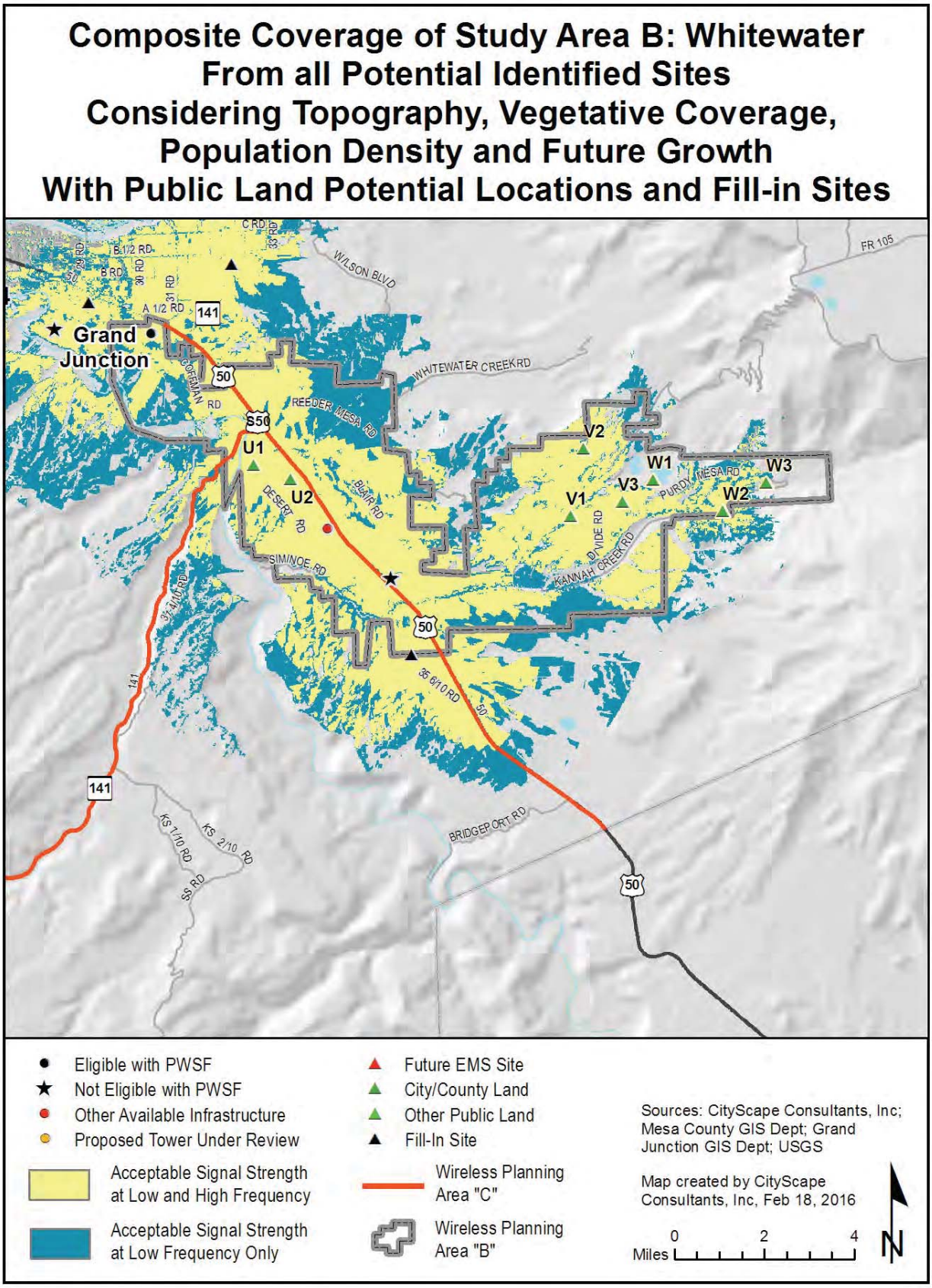


Figure 49: Coverage with Future Fill-In

Town of Collbran

Area B: Town of Collbran

CHARACTERISTICS:

- Rural/Undeveloped
- 251.49 Square Miles
- 2010 Population Estimate 2,359
- 2030 Population Estimate 3,008

Town of Collbran Theoretical Root Mean Square Maps

The following maps represent a theoretical build-out of equally distributed antennas, mounted at a tower height of 118-feet, in a perfect radio frequency environment for a single service provider that excludes topographic, vegetative cover and population density considerations. The black dot within each larger circle indicates the ideal antenna location. The smaller circle within the larger circle represents the acceptable search ring for locating the tower and antennas

Figure 50 illustrates that 19 towers or base stations equally distributed throughout the Town of Collbran Study Area would provide complete low frequency coverage to the defined study area. Figure 51 illustrates that 60 locations would be needed to provide complete high frequency coverage to the same geographic area.

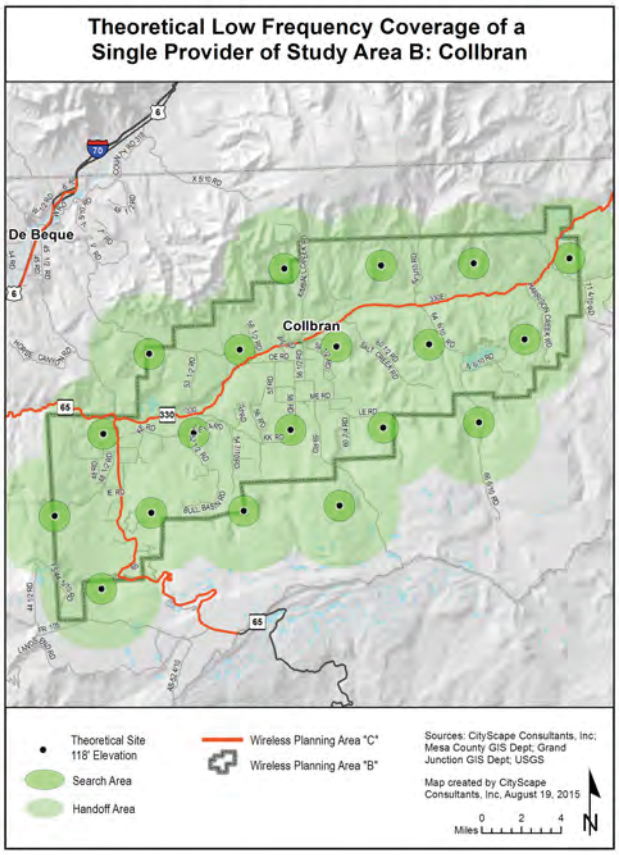


Figure 50: Theoretical Low Frequency Coverage

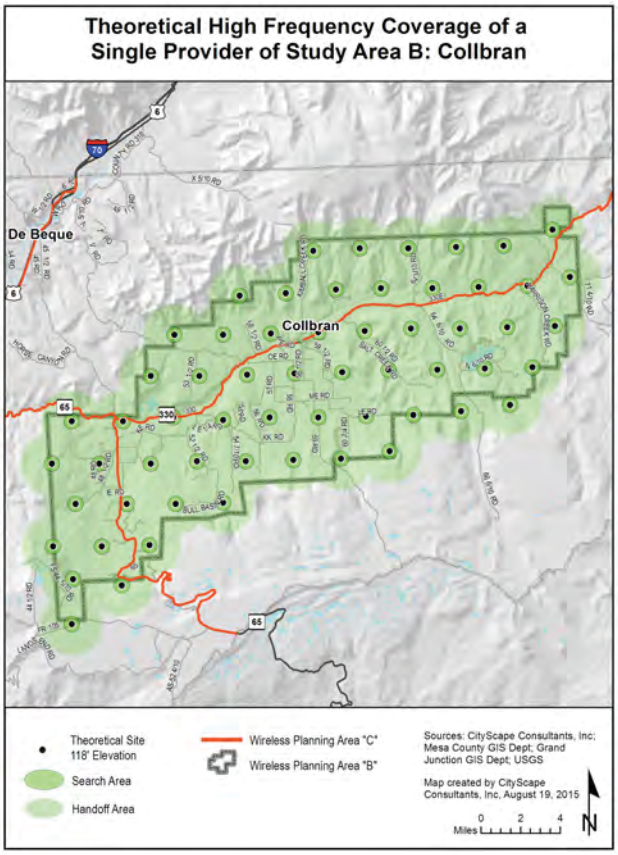


Figure 51: Theoretical High Frequency Coverage

Town of Collbran Existing Antenna Locations

A total of four transmission towers are located within the Town of Collbran Study Area. Only one has PWSF installed. There are tower clusters just west of the study area boundary at Land's End and Palisade Point. The clusters consist of 37 towers but only two contains PWSF equipment. The majority of the cluster towers contain either broadcast equipment for radio and television or microwave use. Aside from Glade Park, the Town of Collbran Study Area contains the most acreage with the lowest population density. For this reason, the wireless industry has not deployed much infrastructure except at the Powderhorn Ski Resort. This is very similar to the situation in Gateway where the resort and the tourist traffic have provided enough business incentive for the carriers to provide limited service.

Existing Total Number of Towers	In	Out	Existing Total Number of Base Stations	In	Out
Eligible Tower with PWSF	0	1	Eligible Base Station with PWSF	0	0
Non Eligible Tower with PWSF	1	1	Non Eligible Base Station with PWSF	0	0
Eligible Tower with no PWSF	0	0	Eligible Base Station with no PWSF	0	0
Non Eligible Tower with no PWSF	3	37	Non Eligible Base Station with no PWSF	0	0
Proposed Eligible Tower	0	0	Proposed Eligible Tower	0	0
Total	**4**	**39**	**Total**	**0**	**0**
Site numbers in the Town of Collbran Study Area: 4, 33, 130, 142					
Site numbers within the 1.5 mile perimeter of the Town of Collbran Study Area: 7-30					

Table 22: Summary of Existing and Proposed Transmission Equipment

Figure 52 identifies the location of the sites listed in Table 22 above and are represented by:

- Black dot - Eligible towers or base stations with PWSF which have been approved through a prescribed process by the appropriate local government agency.
- Red dot - Non eligible towers or base stations (meaning infrastructure built without prior approval for construction by the appropriate local government agency).
- Orange dot - Tower or base station that has either been approved but not yet built; or is undergoing review at the time of this publication

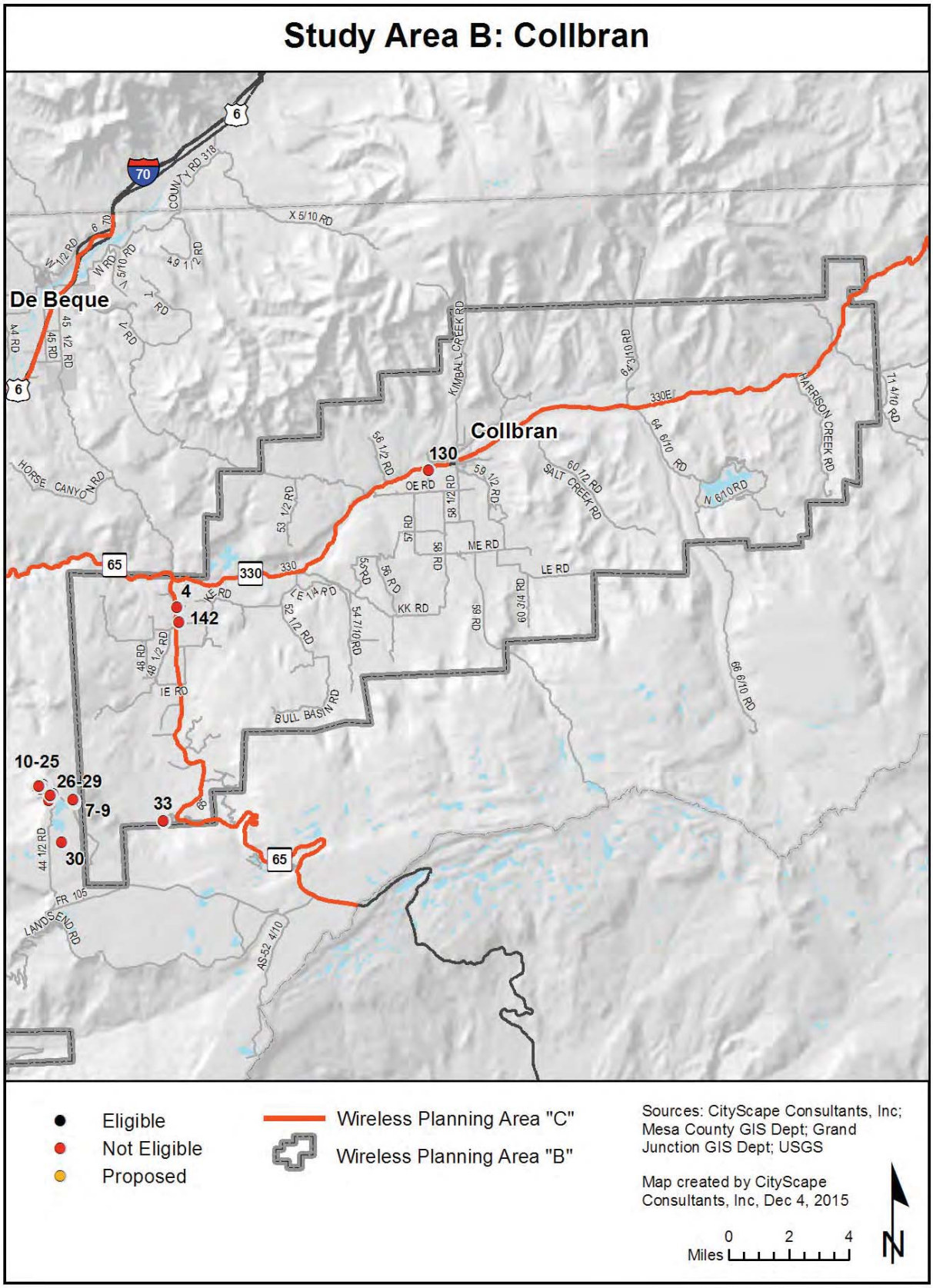


Figure 52: Existing Antenna Locations

Town of Collbran Composite Maps

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 53 illustrates current and future theoretical coverage for one service provider operating in the low or high band frequency assuming they had equipment on each facility.

This map includes the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation in both figures is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

Figure 53 identifies the location of the inventory sites categorized as follows:

- Black dot - Eligible towers or base stations with PWSF
- ★ Black star - Non eligible towers or base stations without PWSF

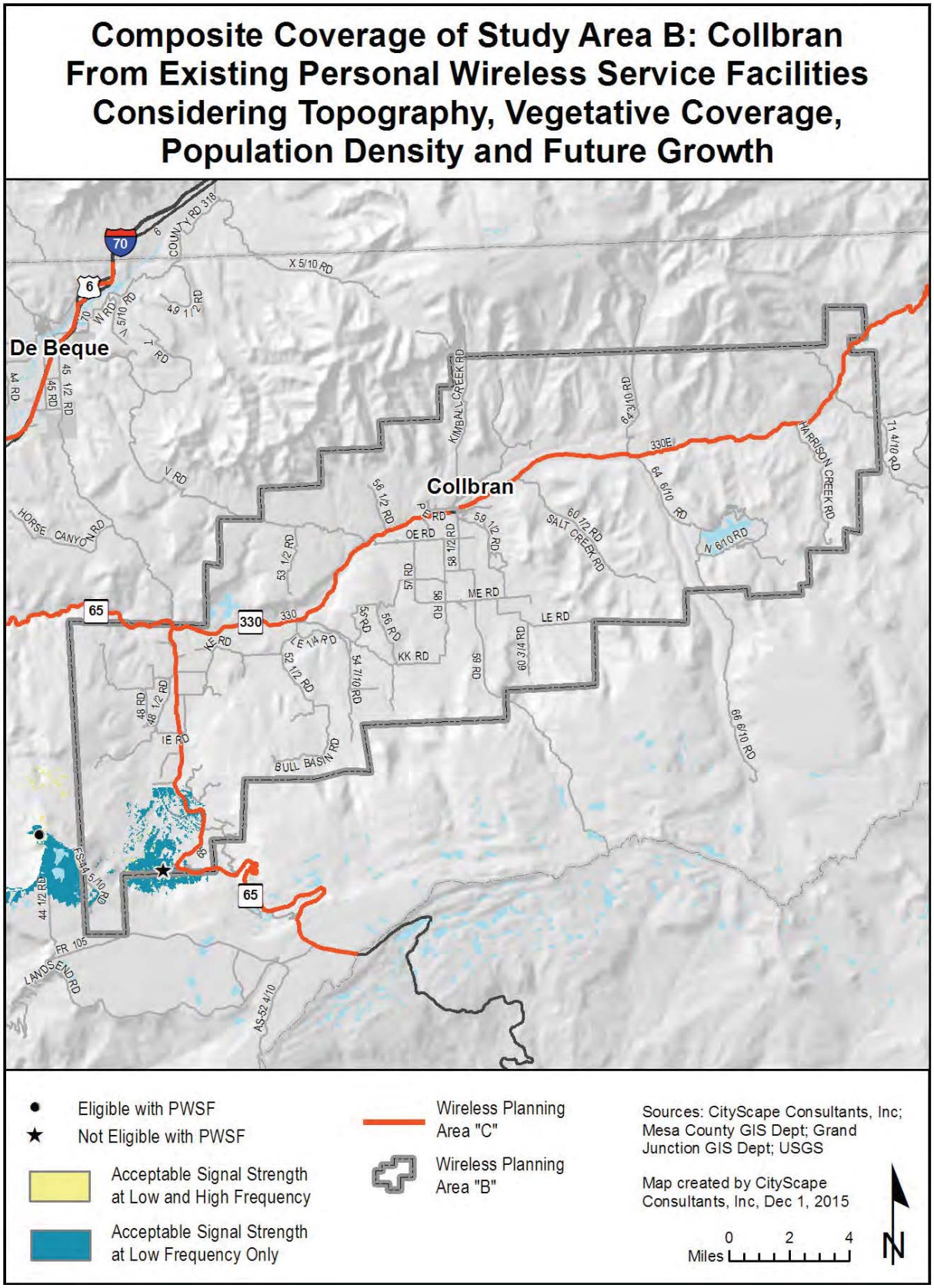


Figure 53: Current Potential Coverage Including Future Growth

Town of Collbran Estimation of Future Antenna Sites

There are three concentrations in populations in the Town of Collbran Study Area: Town of Collbran, Mesa Community and Powderhorn Resort. The Town and County desire to have services to connect the residents and vehicular activity between the three places. Recently, a study was completed to identify possible locations for additional emergency services infrastructure. Two of these sites are located in this study area and one is located just east of the Town's limits. All three sites have been added to the map in Figure 54, identified by red triangles. Temporary towers often referred to as Cell On Wheels (COW) has been used by the oil and gasoline industries in this region. Unfortunately once a project is finished the COW is removed resulting in a sudden loss of service. In order to provide long-term solutions to network gaps CityScape has identified an additional twelve locations that would provide a blanket of coverage along the Highway 330 corridor and the Town of Collbran. But, CityScape anticipates that only two of those facilities may be constructed over the next ten to fifteen years. Due to the unique circumstances found in this study area, CityScape recommends that residents and local government agencies work with the service providers to create a coordinated effort to develop new sites.

CityScape has reviewed the gaps in network coverage in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless broadband equipment use.

Figure 54 indicates how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 23 identifies potential public property fill-in sites. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
C	Town of Collbran	Town of Collbran	61416 E Hwy 330	2665-203-00-941	1.196	Not Determined

Table 23: Town of Collbran Potential Fill-In Public Property

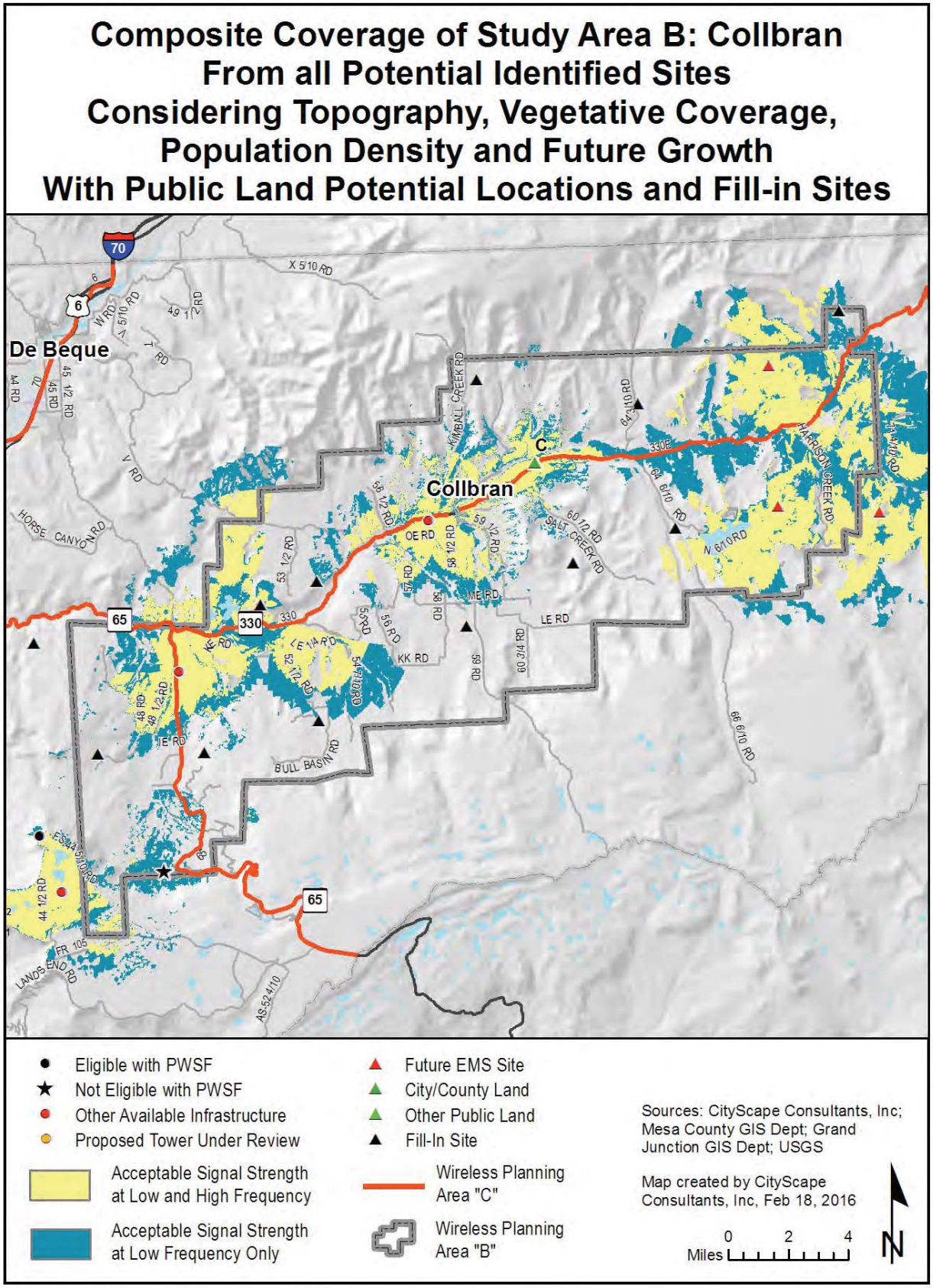


Figure 54: Coverage with Future Fill-In

Corridors

Mesa County Study Area C: Corridors

Overview

The third study area specified in the RFP for analysis is identified as Corridors: I-70, Highway 50, Highway 330, Highway 60 and Highway 141. Due to the large geographic area covered by these corridors, Study Area C has been divided into four sections. Since much of the corridor analysis is included in the other study areas, the estimated future antenna sites focus only on the projected fill-in analysis shown in Figure 55, as insets 1, 2, 3 and 4.

The service area coverage based on propagation signal strength modeling is shown for both low band frequency in yellow and high band frequency in blue on the following composite maps. The highlighted areas represent where a generally reliable signal level should be available for indoor use for both low and high bands of service.

Indoor usage is the service threshold utilized for composite modeling because it represents the lowest signal strength acceptable after considering the signal loss that occurs from building penetration. Outdoor signal strength in the same area will usually be higher than indoor signal strength. Generally the closer the subscriber is to the antenna base station the more reliable the service. A subscriber further from the antenna base station will have less reliable service. As the subscriber gets closer to the edge of the yellow or blue area, the signal strength becomes more prone to degradation, particularly as usage in the area increases or environmental conditions worsen. Areas of gray on the map indicate where the subscriber will experience weak, unpredictable levels of signal strength, or no service at all. Filling in these coverage gaps would require the installation of additional antenna and corresponding construction of more towers or the identification of buildings that would serve as base stations.

Figure 56 illustrates current and future theoretical coverage for one service provider operating in the low or high band frequency assuming they had equipment on each inventoried facility. This map includes the expected effects of terrain, vegetative cover, and current population density variables. The antenna mounting elevation is assumed to be at the top of the towers and base stations where the height is known or at 118 feet where unknown.

CityScape has reviewed the gaps in network coverage, as shown in Figures 57-60, in comparison to the location of publicly owned properties and considered the impact that placing a tower on those properties would have on network and public safety coverage. When publicly owned property is used for new tower or base station construction, the community, represented by their local government agency, is assured that their preferences for tower types and concealment technology are followed. As public properties are developed, the infrastructure installed becomes the precedent for how future sites should be developed on both public and private land. For example, many slick sticks and "flag pole" towers are available to the industry as are other creative concealment techniques. Some are more aesthetically pleasing and more practical than other types. As the local government adopts preferred products on publicly owned property, their application become the standard for future tower sites developed on public and private land within their zoning jurisdiction. Leasing public properties to tower builders and tenant carriers for new wireless infrastructure can also create new sources of public revenue. Additionally, having a tower on public property results in an asset for the local government that is available for emergency services radio and wireless

broadband equipment use.

Figures 57-60 indicate how certain geographic areas would benefit with improved network coverage from the addition of the publicly-owned properties. Table 24 identifies potential public property fill-in sites that satisfies both corridor and study area coverage gaps. Tower type preferences are not provided in the recommendation column because the property has not been vetted by the local planning agency.

Public Site ID	Owner	Location	Address	Parcel Number	Acreage	Site-Specific Recommendation
B1	DeBeque Fire Protection District	DeBeque	4580 I70 Frontage Road	2445-274-00-944	5.86	Not Determined
B2	Town of DeBeque	DeBeque	414 Rouse Avenue	2445-272-00-943	61.767	Not Determined
C	Town of Collbran	Town of Collbran	61416 E Hwy 330	2665-203-00-941	1.196	Not Determined
E1	Lower Valley Protection District	Lower Valley/Loma	1341 13 Road	2691-334-04-948	0.79	Not Determined
E2	State Department of Highways	Lower Valley/Loma	1346 13 3/10 Road	2691-342-00-924	9.762	Not Determined
G	Mesa County	Lower Valley	916 19 1/2 Road	2697-224-00-939	5.281	Not Determined
Q	Colorado Department of Highways	Palisade	816 35 8/10 Road	2937-063-00-924	10.241	Not Determined
U1	Mesa County	Whitewater	527 Desert Road	2967-231-00-939	116.554	Not Determined
U2	City of Grand Junction	Whitewater	33129 Mill Tailing Road	2967-243-00-944	138.554	Not Determined
X	Mesa County	Gateway	42700 Highway 141	3477-153-01-936	7.663	Not Determined

Table 24: Mesa County Potential Fill-In Public Properties

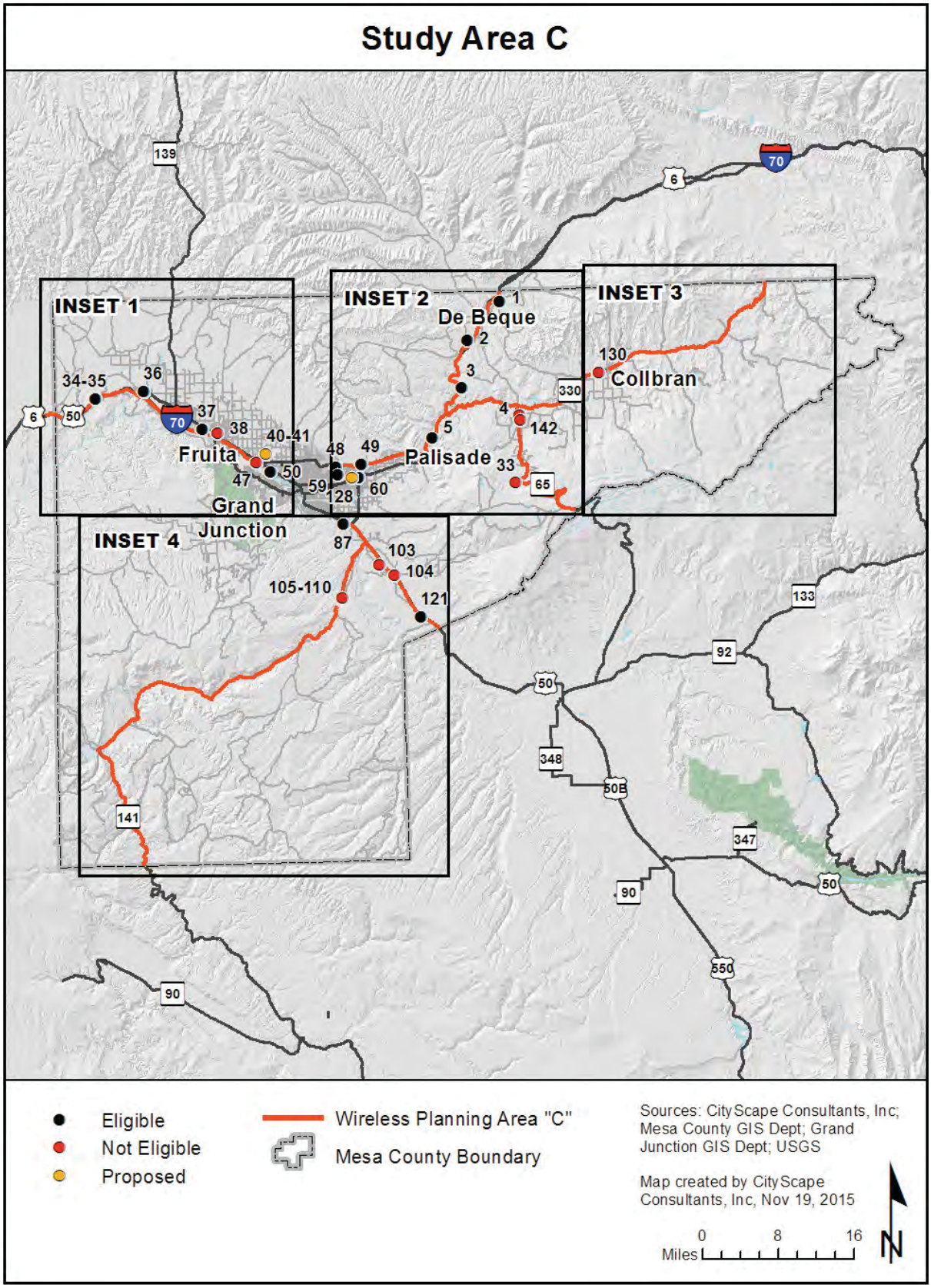


Figure 55: Existing Antenna Locations

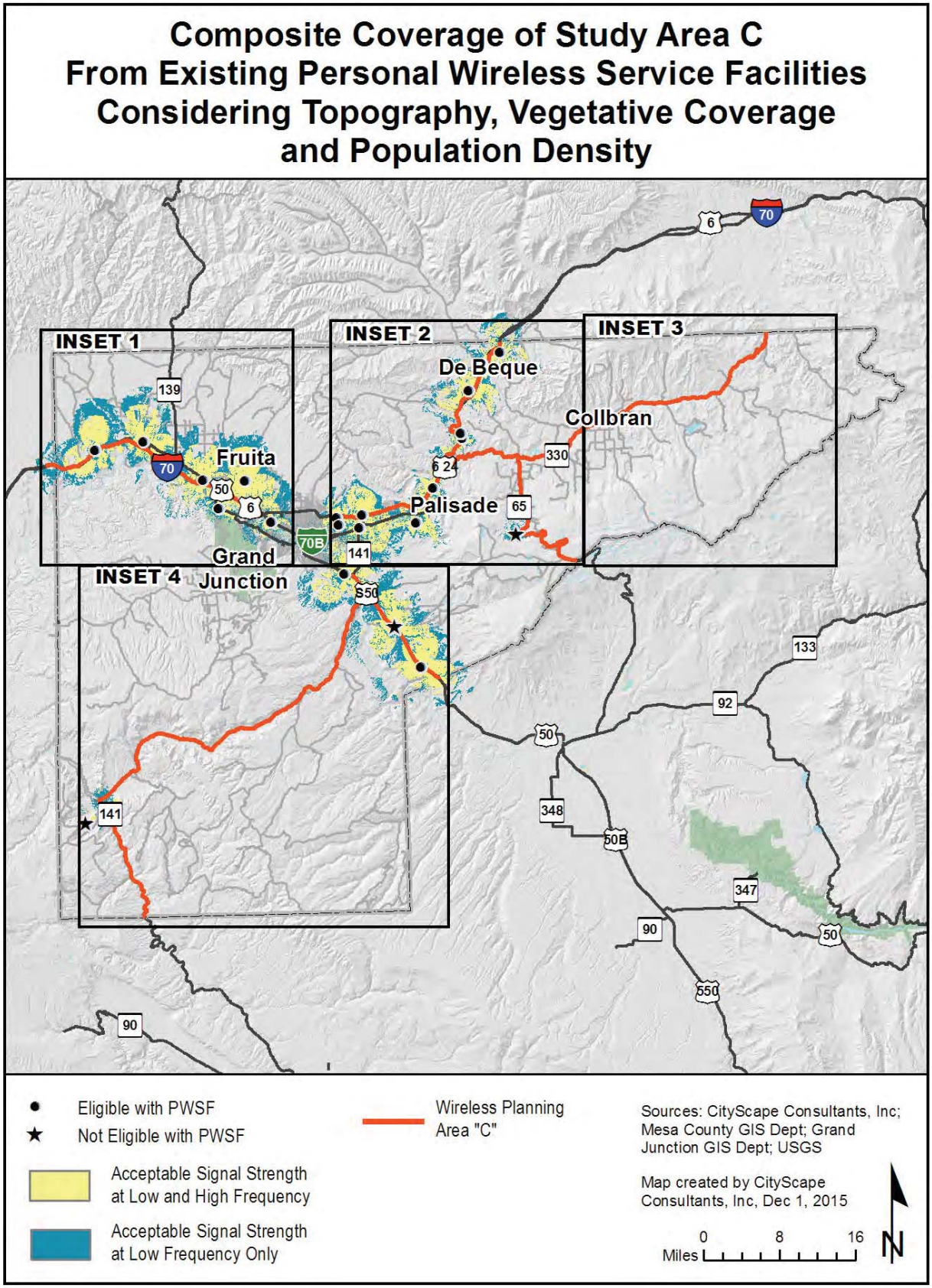


Figure 56: Current Potential Coverage Including Future Growth

Estimation of Future Antenna Sites Inset 1

CityScape estimates that six new towers or base stations will be needed over the next ten to fifteen years along the I-70 corridor as shown in Figure 57.

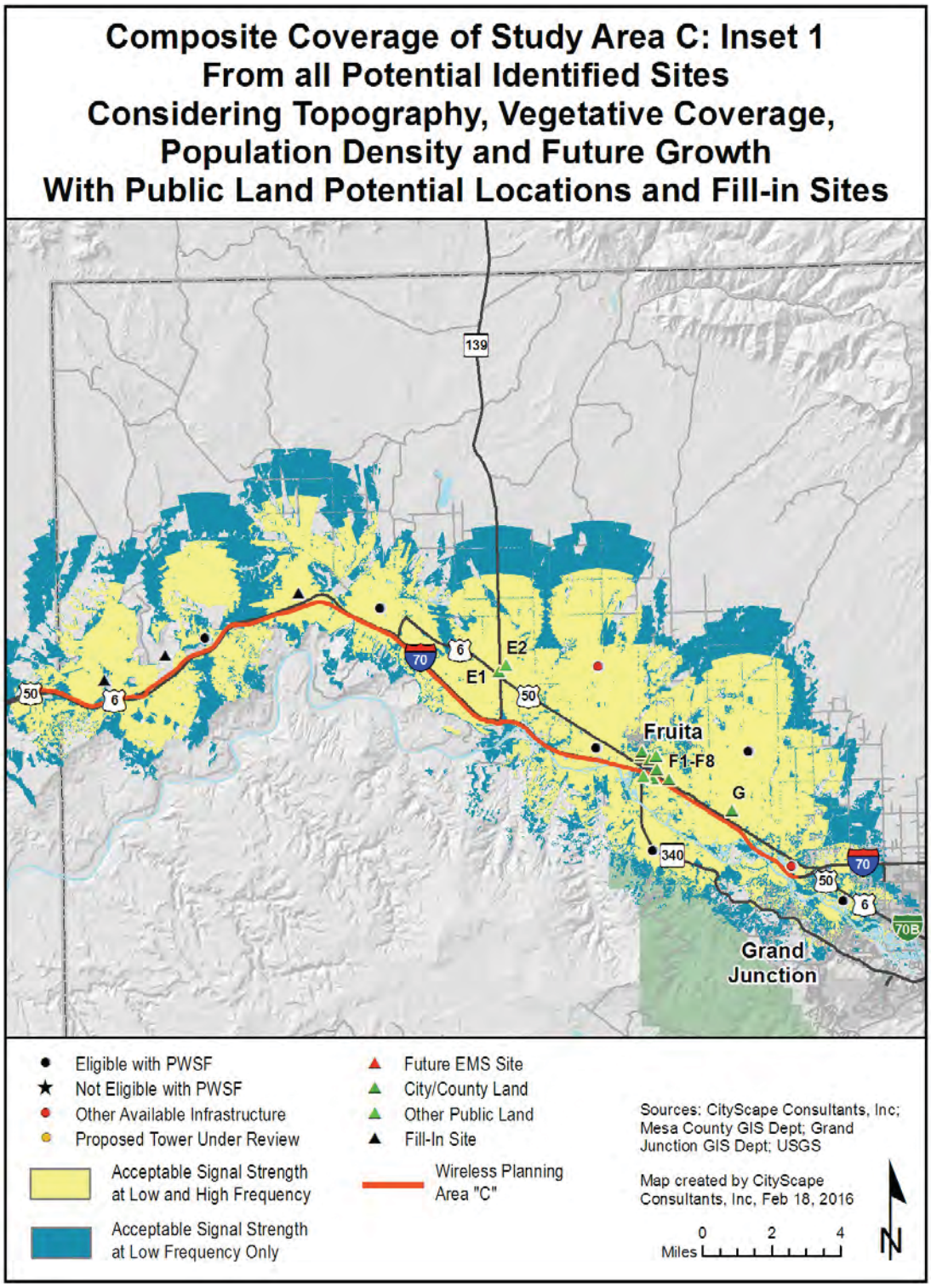


Figure 57: Coverage with Future Fill-In Inset 1

Estimation of Future Antenna Sites Inset 2

CityScape estimates that, in addition to adding three proposed emergency service facilities, eight new towers or base stations will be needed over the next ten to fifteen years along the corridors shown in Figure 58.

Approximately 15 new sites would be needed to provide complete coverage. However, the sites along Highway 65 and Highway 330 will likely not be a high priority for the industry and therefore, four of the fifteen sites have not been turned on.

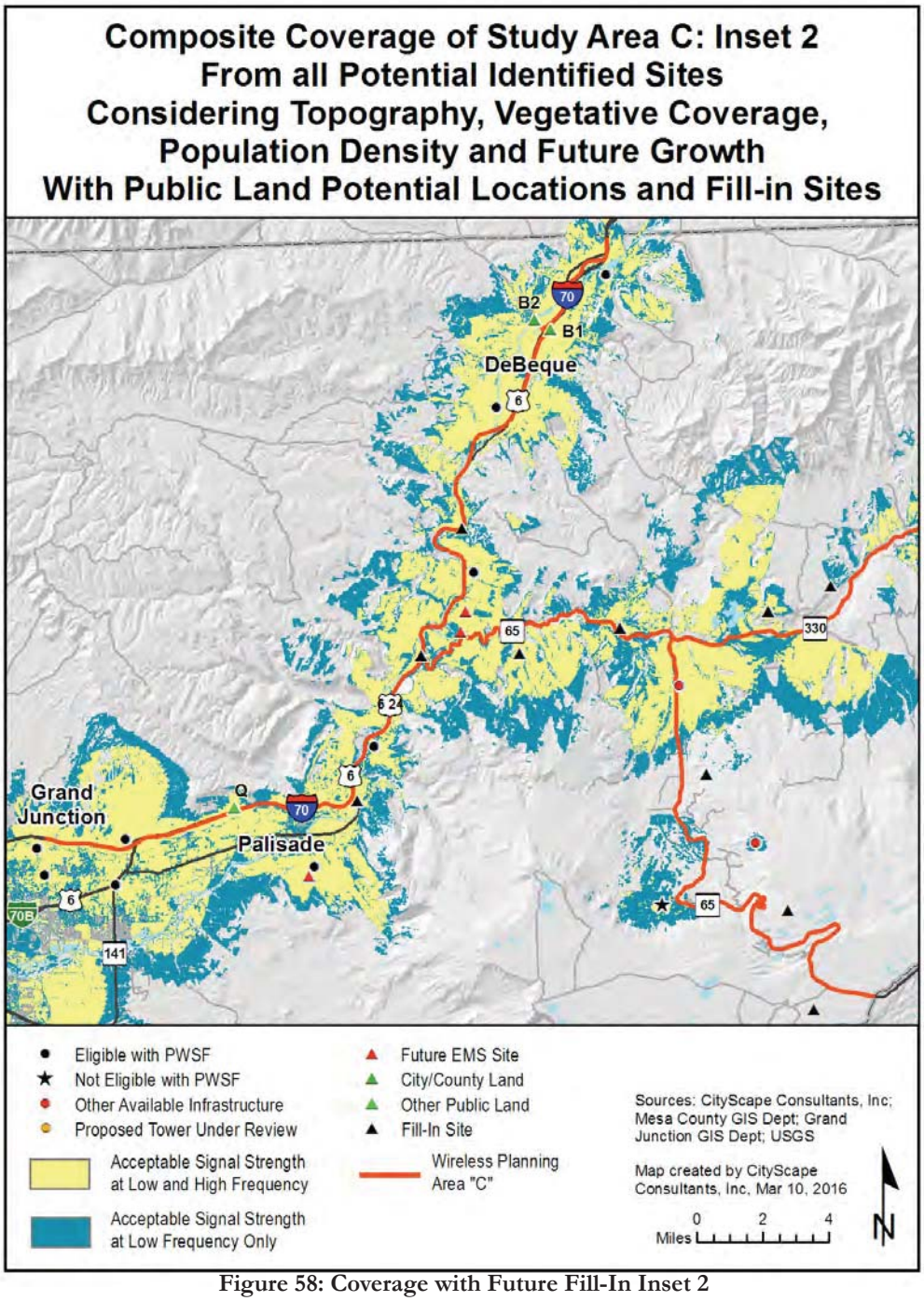


Figure 58: Coverage with Future Fill-In Inset 2

Estimation of Future Antenna Sites Inset 3

Highway 330 from the Town of Collbran eastward to the County line is a secondary highway and will not likely be a high priority for the service providers over the next ten to fifteen years due to the low subscriber base. CityScape has identified seven facilities to fill-in the coverage gaps along the highway but is only turning on Site C (also in the Town of Collbran Study Area) and the three tower locations identified as potential emergency management service facilities shown in Figure 59.

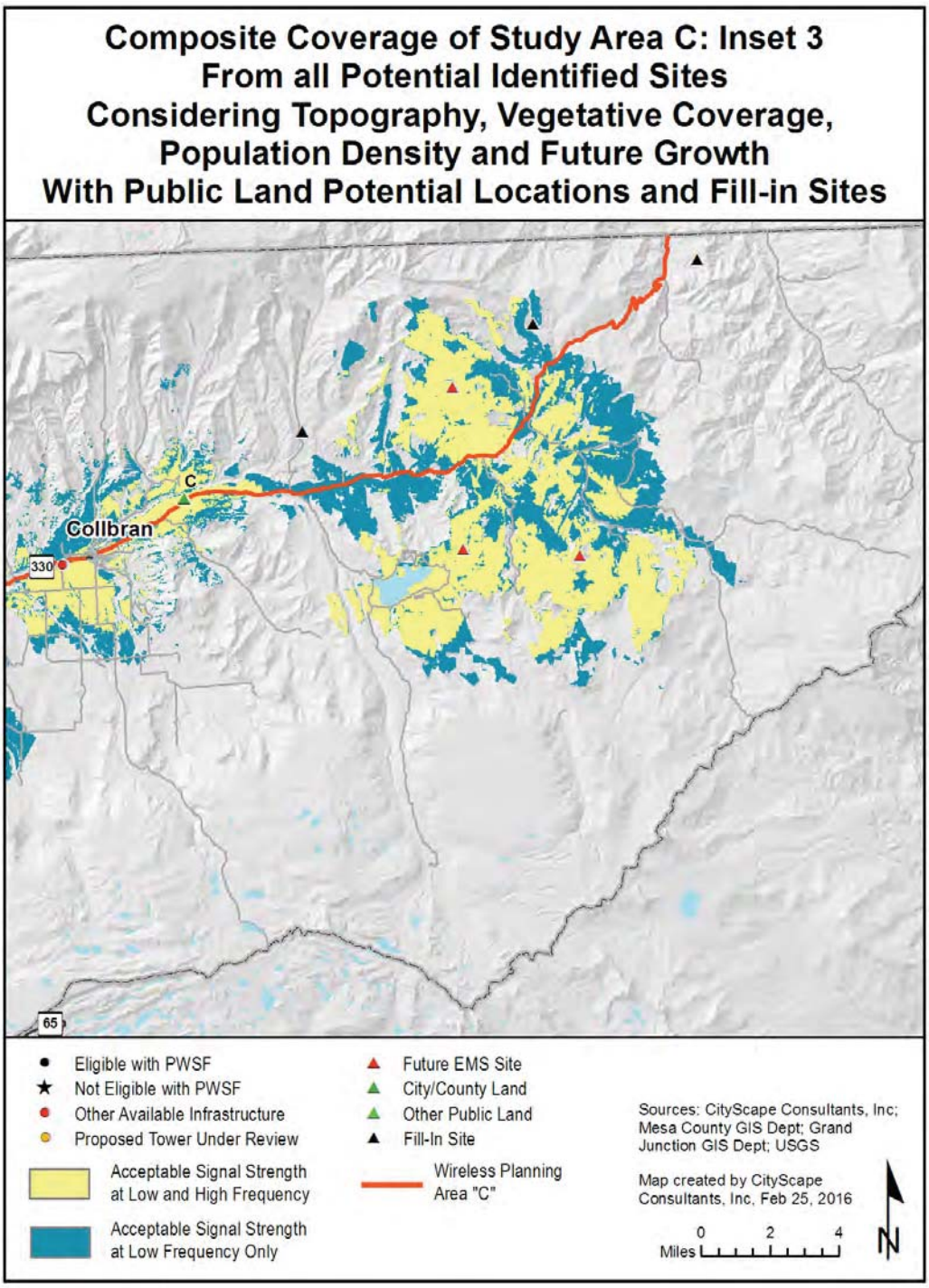


Figure 59: Coverage with Future Fill-In Inset 3

Estimation of Future Antenna Sites Inset 4

Providing coverage along Highway 141 will be challenging due to the topography of the area. It is not likely the industry will provide near term coverage to this corridor because of the rural and undeveloped nature of the area. CityScape included the use of seven proposed emergency service facilities in the coverage map and forecasts that seven additional towers or base stations would be needed to provide full coverage along the corridors as shown in Figure 60. CityScape anticipates that two of the seven proposed facilities may be built south of the Highway 50 and Highway 141 intersection.

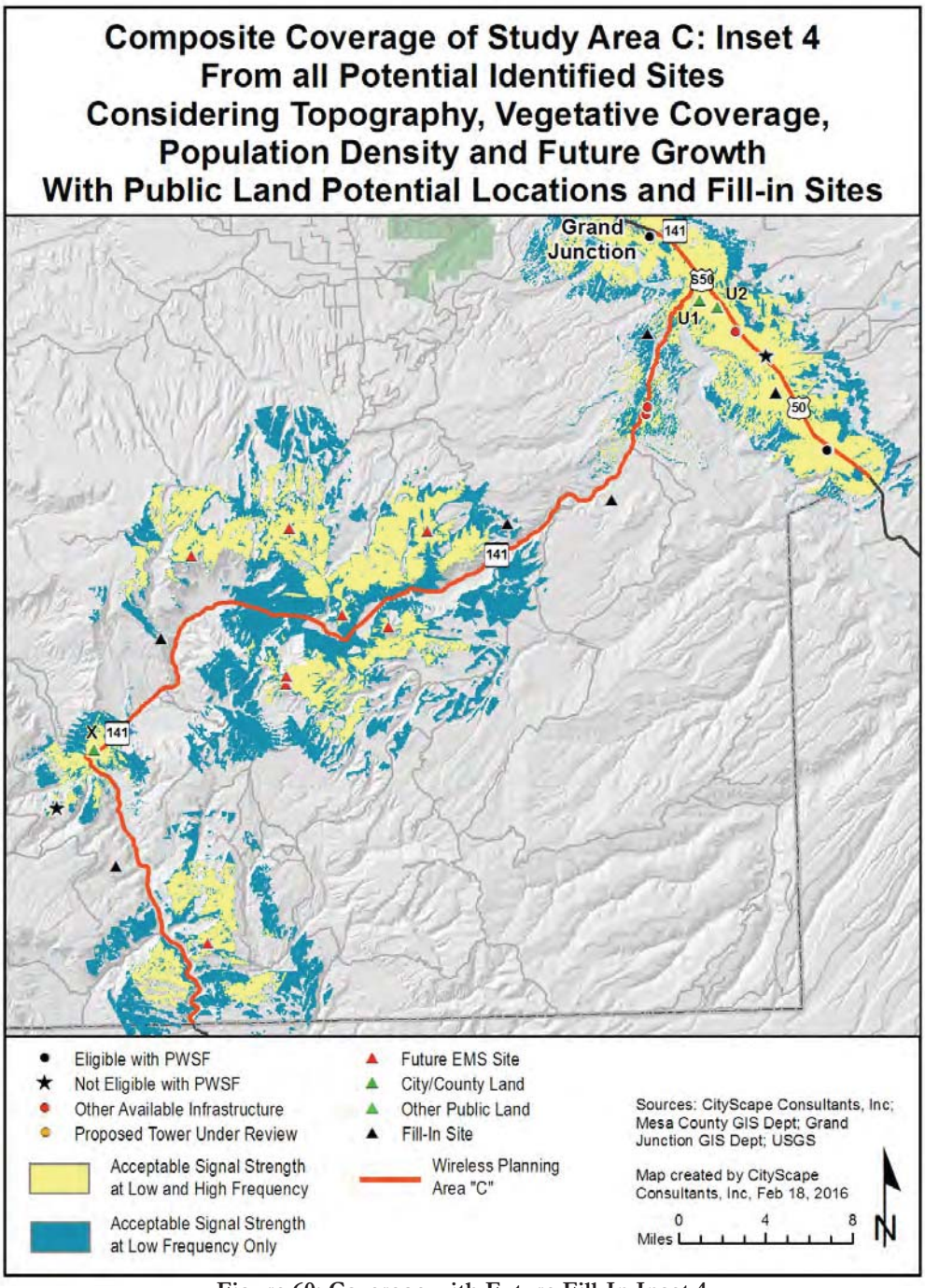


Figure 60: Coverage with Future Fill-In Inset 4

Summary

Chapter 4

Summary

Wireless connectivity has become an increasingly important part of our everyday lives. Wireless telecommunication technology has evolved rapidly over the past twenty years providing capabilities that have resulted in dramatically increased cellular phone and Internet use. Cellular phones used to be just a way of making a phone call when you were away from home or work. Now we use smart phones and tablets to shop, find restaurants, compare prices, buy movie tickets, bank, navigate, and to stay in touch through social media sites. First responders throughout Mesa County rely more and more on cellular data communication in the field, as do 911 callers in an emergency situation. The demand for wireless Internet and data service coverage and capacity has strained existing telecommunication network facilities and is causing cellular service providers to plan for the construction of new infrastructure.

Due to the semi-remote location of Mesa County, wireless technologies are critical for personal, business and emergency communication, and are heavily relied upon by residents and visitors. The blend of urban and undeveloped areas, year round recreational activity communication needs, and the canyons, valleys, plateaus and ridge lines all create difficult coverage challenges for service providers. Wireless telecommunications master planning is an approach taken by communities to determine wireless service industry deployment patterns and to identify gaps in network coverage. With this information communities can develop strategies to fill in those gaps.

The benefits of a WMP are multi-faceted, addressing community, economic development, and planning needs, as well as emergency service provider requirements. A comprehensive approach to wireless development will align the needs of personal wireless and broadband service providers with optimal infrastructure solutions that will support government and community objectives, allowing for infrastructure planning and development that will accommodate multiple providers, improve public safety and help to attract and retain residents and businesses.

Grand Junction / Persigo 201 Study Area

Due to the concentration of population and urban characteristics of the City of Grand Junction, CityScape estimates that the largest number of new sites constructed over the next ten to fifteen years will be built in and around the Persigo 201 Study Area. Approximately 11-18 new towers or base stations will be needed to fill-in the anticipated coverage gaps. The projection model that CityScape designed assumes that all existing tower and base station locations will be used for maximum co-location and/or replacement opportunities in an effort to reduce the number of new towers and base stations required within a given geographic area. Should the industry not maximize the use of existing facilities, a greater number of towers will need to be constructed over this same time period. It should also be noted that even with this increase in new facilities, some areas within the study area will still be underserved due to the terrain and rural characteristics around the periphery of the study area.

County-Wide

CityScape estimates that five to eight co-locations, upgrades or antenna modifications (in any combination) per year can be anticipated over the next ten years. Over the next fifteen years, up to

40 new tower or base station sites will be needed county-wide to fill coverage gaps and/or increase capacity. The more populated areas of the County will likely see the development of "small cell" sites that consist of multiple concealed antennas located relatively close together on shorter towers or existing support structures like light and utility poles. Rural areas are more likely to be served by towers that can provide coverage over larger geographic areas.

Ongoing Goals and Objectives to Maximize the Benefits of the Master Plan

The City of Grand Junction and Mesa County will need to manage the development of wireless telecommunication infrastructure in order to maximize the use of existing towers and base stations and to minimize the total number of new facilities needed to fill in coverage gaps. The Wireless Master Plan recommends the following action items be implemented to meet these goals:

1. Maintain the wireless facilities inventory, updating it as facilities are added or modified, and make it available to the public on-line through the City and County websites.

2. Prepare amendments to the City and County development codes that update zoning requirements and review procedures for wireless telecommunications facilities to make the codes compliant with current FCC regulations.

    a) Update the development codes as needed when regulations change.

3. Maintain a Priority Site List of fill-in sites, identifying properties that are both publicly and privately owned, that meet the criteria established for preferred cellular facilities. Properties that are on the Priority Site List may be eligible for expedited administrative review of wireless facilities, provided the proposed facility meets the concealment requirements identified at the time of inclusion on the Priority List, and all other applicable standards of the development code. The criteria for Priority Sites are:

    a) The property shall be located within the Grand Junction Persigo 201 Boundary or can be included in the Grand Junction Persigo 201 Boundary.

    b) The property shall be one acre minimum in lot size.

    c) The property shall have vehicular access to an improved public right-of-way.

    d) The property shall have access to utilities.

    e) The property shall be outside the 100 year flood plain.

    f) The cellular facility shall meet all City development standards and be subject to all regulations of the zoning code.

    g) Concealment is required and the owner of the property must identify the type of concealment proposed, prior to inclusion on the Priority Site list, with the understanding that if accepted by the City, then any type of concealment aside from what is proposed and accepted at the time of the Master Plan vetting process would require a conditional use permit (CUP).

4. Seek out public/private partnerships to encourage the development of wireless facilities in rural areas that are underserved and have significant coverage gaps.
5. Where feasible, plan for the ability to co-locate private wireless facilities on public safety communication infrastructure, in order to fill coverage gaps and provide better service to residents.
6. Encourage the development of broadband infrastructure that will help support the development of wireless infrastructure.
7. Work with economic development partners to seek out opportunities to expand wireless telecommunication facilities to support business development.
8. Maintain awareness of evolving concealment options so the design and planning processes of new towers will blend visually within the community they serve.

Wireless Infrastructure Inventory

Transmission Equipment

Procedure

CityScape conducted an assessment of the existing antenna locations throughout Grand Junction and Mesa County by driving to all locations. Data for the assessments was obtained from a number of sources including actual permits obtained from the City/County for wireless infrastructure, research of FCC registered site locations, direct information from existing wireless service providers and tower owners active in the City/County, the City/County's GIS, and through actual site visits to each location.

Structural evaluation

Based on a visual inspection of antenna arrays already on existing antenna support structures, CityScape made an evaluation as to whether each support structure is likely to physically accommodate more antennas. The number of estimated colocations is referenced as future antenna colocation possibilities. The suggested colocation is based on visual observations only. In this consideration, adding antennas equates to adding other wireless antenna platform(s) consisting of several antennas and associated coaxial cable. Prior to mounting new antennas and related equipment, the structure must be examined and analyzed by a structural engineer for its ability to support the proposed addition(s).

Site photographs

Photographs of the exiting antenna are provided for most of the sites.

Categorization

The criteria used to choose the sites is specific to the definitions as defined by the October 2014 Federal Communications Commission (FCC) Report and Order on Improving Wireless Siting Policies.

The definition of "tower" includes any structure built for the sole or primary purpose of supporting any Commission-licensed or authorized antennas and their associated facilities. Types of towers include monopoles, lattice and guy towers used for personal wireless service facilities (PWSF) such as Verizon, AT&T, etc. microwave, emergency services and/or broadcast.

The definition of "base station" is the equipment and non-tower supporting structure at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network. For example an antenna attached onto a rooftop or water tank is a base station.

The sites are then categorized as either "eligible" or "non-eligible". Eligible means the tower was approved via a local approval process. However, if a tower or base station was constructed or deployed without an approval process and was not required to undergo siting review or received another form of affirmative State or local regulatory approval it is categorized as non-eligible. The sites in the inventory are further categorized as personal wireless service facility "PWSF".

SITE 1: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-20-53.88 N
IDENTIFICATION:	**ASR:** N/A	**FACILITY OWNER ID:** CO10495-A	**LONGITUDE:**	-108-10-14.82 W
SITE ADDRESS:	4721 I-70 Frontage Road, Collbran		**PLACE:**	Collbran
SITE NAME:	Truck Stop Jr.			
TYPE:	Lattice			
HEIGHT:	131’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	4: Cleartalk; Skybeam; T-Mobile; Verizon			
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL #:	2445-244-00-914			
ZONING:	AFT			

SITE 2: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER	Chevron USA Inc., ETAL		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-17-28.78 N
IDENTIFICATION:	**ASR**:	**FACILITY OWNER ID**: CO10460-A	**LONGITUDE:**	-108-14-7.02 W
SITE ADDRESS:	1921 45 1/2 Road, De Beque		**PLACE:**	De Beque
SITE NAME:	Chevron 2			
TYPE:	Lattice			
HEIGHT:	151’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	1: AT&T			
POTENTIAL COLLOCATIONS:	Yes - 4			
PARCEL #:	2671-054-00-092			
ZONING:	AFT			

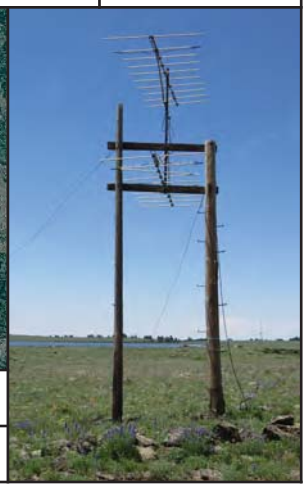
SITE 3: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Mark R Walker Revco Trust		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Crown Castle		**LATITUDE:**	39-13-8.88 N
IDENTIFICATION:	**ASR**:	**FACILITY OWNER ID:** 828910	**LONGITUDE:**	-108-15-2.73 W
SITE ADDRESS:	4310 Horse Canyon Road, De Beque		**PLACE:**	De Beque
SITE NAME:	Walker Property			
TYPE:	Lattice			
HEIGHT:	60’			
ANTENNA TYPES:	Directional PWSF; Microwave			
SERVICE PROVIDER:	1: T-Mobile			
POTENTIAL COLLOCATIONS:	Yes - 1 possibly 2			
PARCEL #:	2711-052-00-113			
ZONING:	AFT			

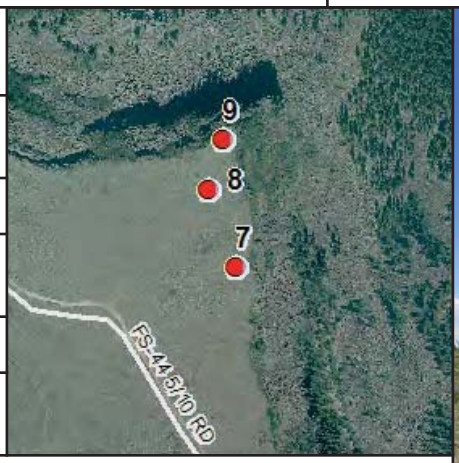
SITE 4: NON ELIGIBLE TOWER WITH NO PWSF				
PROPERTY OWNER:	Plateau Valley Fire Protection		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Plateau Valley Fire Protection		**LATITUDE:**	39-10-52.92N
IDENTIFICATION:	**ASR**:	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-8-16.20 W
SITE ADDRESS:	49084 KE 1/2 Road, Mesa		**PLACE:**	Mesa
SITE NAME:	District Station #92			
TYPE:	Attached Lattice			
HEIGHT:	14’			
ANTENNA TYPES:	Emergency Services			
SERVICE PROVIDER:	Fire Department			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2713-202-00-948			
ZONING:	AFT			

SITE 5: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Rudolph Fontanari Trustee		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-8-38.16 N
IDENTIFICATION:	**ASR**: 1225172 -T	**FACILITY OWNER ID:** CO10462-A	**LONGITUDE:**	-108-18-35.76 W
SITE ADDRESS:	968 I-70, Mesa		**PLACE:**	Mesa
SITE NAME:	Coal Mine			
TYPE:	Lattice			
HEIGHT:	127’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	2: AT&T; T-Mobile			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2709-344-00-070			
ZONING:	AFT			

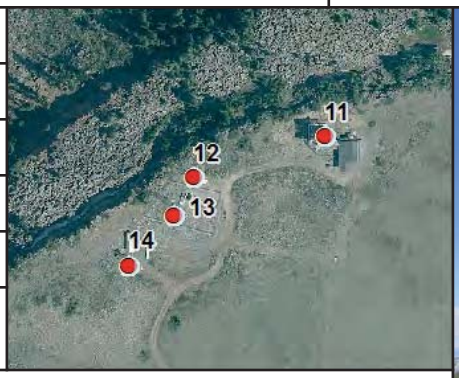
SITE 6: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Talbott Land and Property LLLP		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-5-30.60 N
IDENTIFICATION:	**ASR**: 1215662	**FACILITY OWNER ID:** CO10484-A	**LONGITUDE:**	-108-20-44.76 W
SITE ADDRESS:	3801 F 1/4 Road, Palisade		**PLACE:**	Mesa
SITE NAME:	Palisade Peach			
TYPE:	Monopole			
HEIGHT:	152’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	2:			
POTENTIAL COLLOCATIONS:	Yes - 1 possibly 2			
PARCEL #:	2941-023-00-121			
ZONING:	AFT			

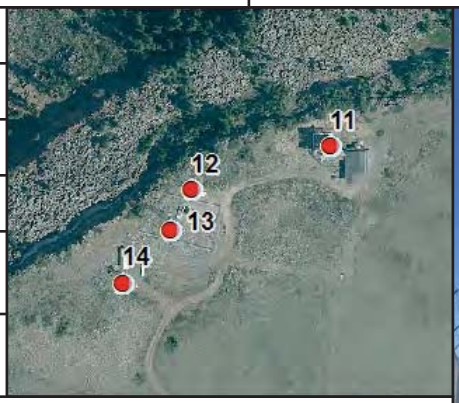
SITE 7: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Eagle Telecommunications Inc.		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	DBS PTI Communications		**LATITUDE:**	39-4-52.51 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-12-20.00 W
SITE ADDRESS:	641 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
FACILITIES:				
SERVICE PROVIDER:	No			
PARCEL # :	2935-232-00-085			
ZONING:	AFT			

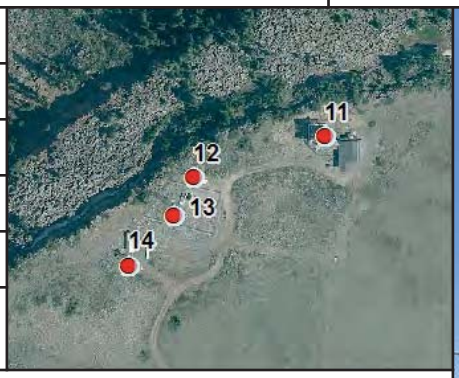
SITE 8: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Mesa County		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Mesa County		**LATITUDE:**	39-4-55.18 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-12-21.13 W
SITE ADDRESS:	641 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Wood Poles			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2935-232-00-931			
ZONING:	AFT			

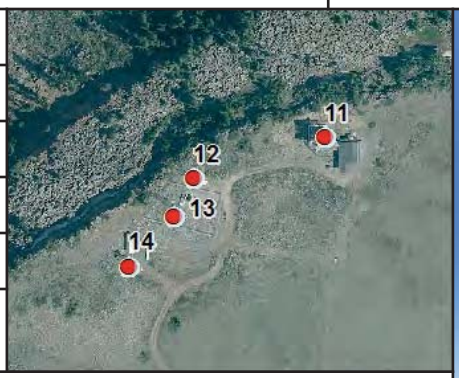
SITE 9: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Mesa County		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Mesa County		**LATITUDE:**	39-4-56.84 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-12-20.43 W
SITE ADDRESS:	641 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:	Mesa County Translator			
TYPE:	4 Guyed Tower Cluster			
HEIGHT:				
ANTENNA TYPES:	TV Translator: K10RB; K31DW-D			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-232-00-931			
ZONING:	AFT			

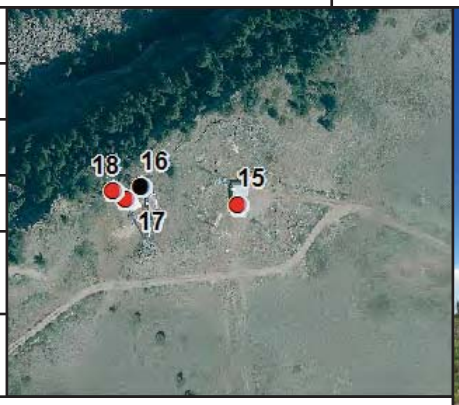
SITE 10: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	FAA Air Traffic Control		**LATITUDE:**	39-5-17.83 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-19.27 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	4 Lattice Towers			
HEIGHT:				
ANTENNA TYPES:	Broadcast			
SERVICE PROVIDER:	FAA Air Traffic Control			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2935-153-00-914			
ZONING:	AFT			

SITE 11: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Qwest		**LATITUDE:**	39-5-27.35 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-22.78 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Self Support			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:	Qwest			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-153-00-914			
ZONING:	AFT			

SITE 12: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Bureau of Land Management		**LATITUDE:**	39-5-26.73 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-25.57 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDERS:	BLM, USFS, NPS, APHIS			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2935-153-00-914			
ZONING:	AFT			

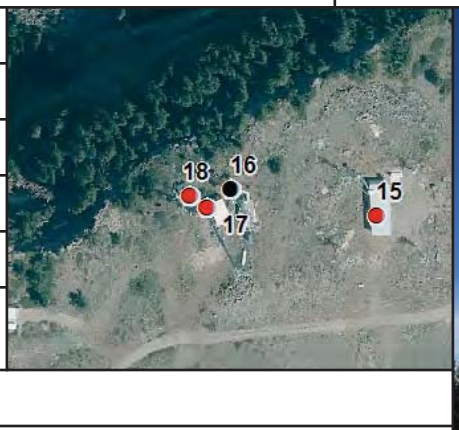
SITE 13: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:			**LATITUDE:**	39-5-26.11 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-26.03 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unlikely			
PARCEL # :	2935-153-00-914			
ZONING:	AFT			

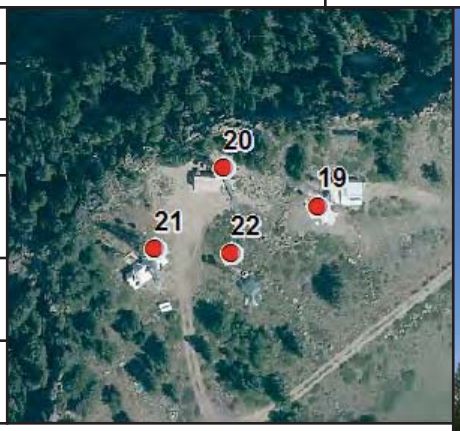
SITE 14: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	US Department of Interior Bureau of Reclamation or WAPA, Doe		**LATITUDE:**	39-5-25.31 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-27.03 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2935-153-00-914			
ZONING:	AFT			

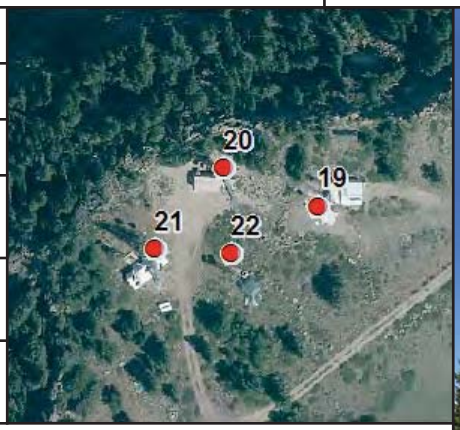
SITE 15: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	FAA Air Traffic Control		**LATITUDE:**	39-5-22.08 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-33.14 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	4 Lattice			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:	FAA Air Traffic Control			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-153-00-914			
ZONING:	AFT			

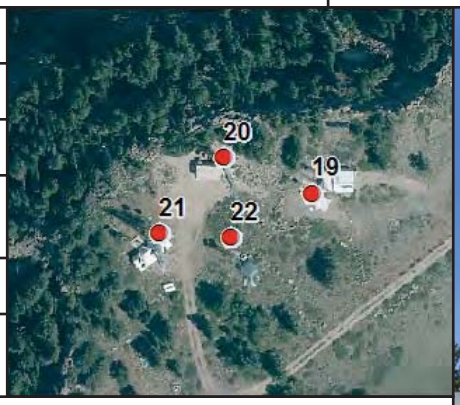
SITE 16: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	DPE LLC		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Verizon Wireless		**LATITUDE:**	39-5-22.40 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** 82069	**LONGITUDE:**	-108-13-35.06 W
SITE ADDRESS:	4595 FS Road, Mesa		**PLACE:**	Lands End
SITE NAME:	Long Mesa			
TYPE:	Lattice			
HEIGHT:	50’			
ANTENNA TYPES:	PWSF; Microwave			
FACILITIES:	1: Verizon			
POTENTIAL COLLOCATIONS:	Possibly 1			
PARCEL #:	2935-153-00-099			
ZONING:	AFT			

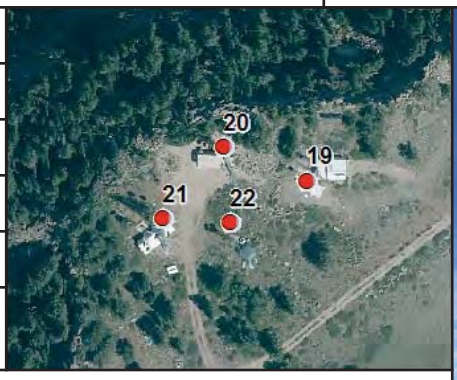
SITE 17: NON ELIGIBLE TOWER				
PROPERTY OWNER:	DPE, LLC		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Two-Way Communications		**LATITUDE:**	39-5-22.21 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** CO-0815	**LONGITUDE:**	-108-13-35.38 W
SITE ADDRESS:	4595 FS Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:	Broadcast; 2-Way; Microwave			
SERVICE PROVIDER:	Nextel and many broadcast entities			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-153-00-099			
ZONING:	AFT			

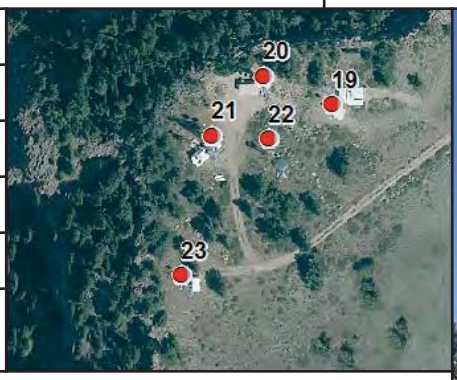
SITE 18: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	DPE, LLC		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Two-Way Communications		**LATITUDE:**	39-5-22.34 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** CO-816	**LONGITUDE:**	-108-13-35.62 W
SITE ADDRESS:	4595 FS Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	2 Guyed			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-153-00-099			
ZONING:	AFT			

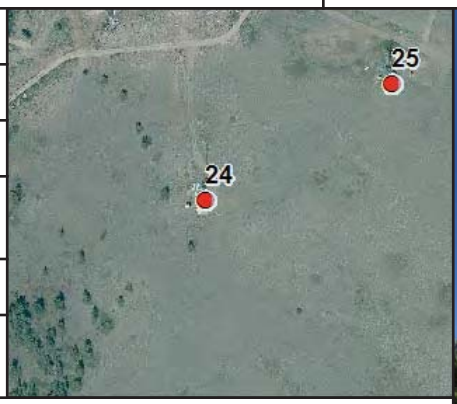
SITE 19: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Mountain Communications & Electronics Inc.		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Mountain Communications & Electronics Inc.		**LATITUDE:**	39-5-21.03 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-38.48 W
SITE ADDRESS:	641 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	4 Lattice			
HEIGHT:				
ANTENNA TYPES:	Broadcast; Microwave			
SERVICE PROVIDER:	Mountain Communications			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2935-153-00-079			
ZONING:	AFT			

SITE 20: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Kelly Family Investments		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Crown Castle		**LATITUDE:**	39-5-21.41 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**: 855730	**LONGITUDE:**	-108-13-39.57 W
SITE ADDRESS:	629 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:	Grand Mesa			
TYPE:	Lattice			
HEIGHT:	100’			
ANTENNA TYPES:	PWSF; 2-Way; Microwave			
FACILITIES:	2: AT&T; Mountain Message			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-153-00-083			
ZONING:	AFT			

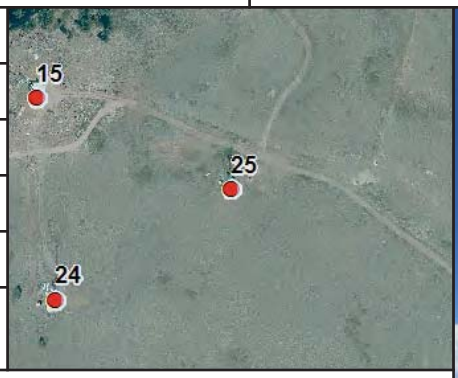
SITE 21: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Public Service Company of Colorado		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Public Service Company of Colorado		**LATITUDE:**	39-5-20.69 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-40.42 W
SITE ADDRESS:			**PLACE:**	Lands End
SITE NAME:				
TYPE:	2 Lattice			
HEIGHT:				
ANTENNA TYPES:	Broadcast; Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2935-153-00-074			
ZONING:	AFT			

SITE 22: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Hoak Media of Colorado, Inc.		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Hoak Media of Colorado, Inc.		**LATITUDE:**	39-5-20.62 N
IDENTIFICATION:	**ASR**:	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-39.52 W
SITE ADDRESS:	635 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	2 Guyed			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL # :	2935-153-00-081			
ZONING:	AFT			

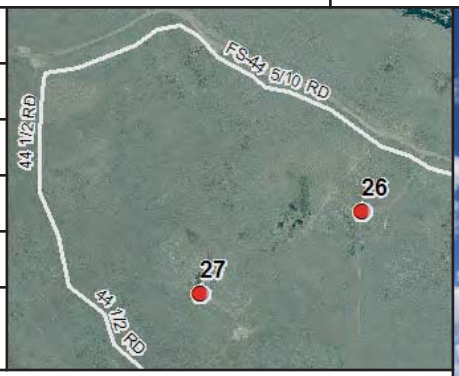
SITE 23: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Western Slope Gas Company		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Western Slope Gas Company		**LATITUDE:**	39-5-18.97 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-40.96 W
SITE ADDRESS:			**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL # :	2935-153-00-061			
ZONING:	AFT			

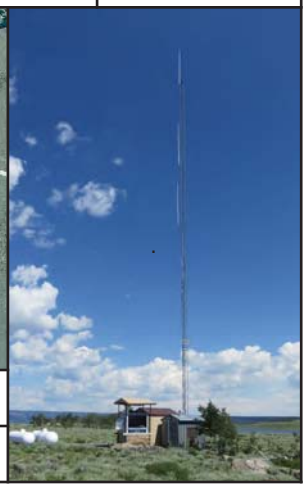
SITE 24: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Grand Junction Regional Communications Center		**LATITUDE:**	39-5-17.9 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-32.79 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:	Broadcast; Microwave			
FACILITIES:				
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2935-153-00-914			
ZONING:	AFT			

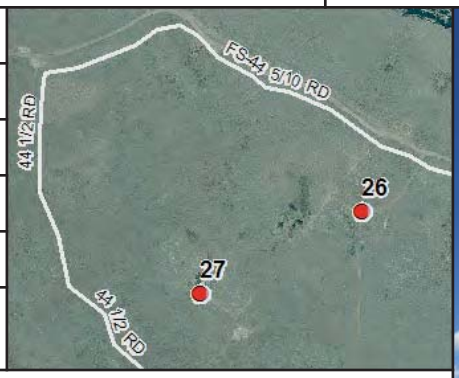
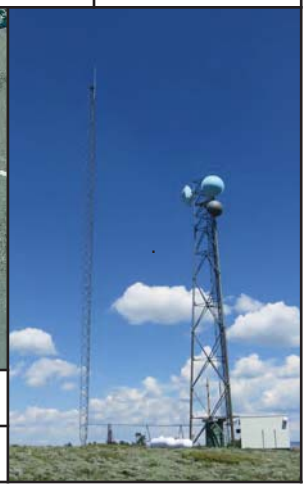
SITE 25: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	KN Telecommunications		**LATITUDE:**	39-5-20.08 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-28.03 W
SITE ADDRESS:	6238 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
FACILITIES:				
POTENTIAL COLLOCATIONS:	Yes - 3			
PARCEL # :	2935-153-00-914			
ZONING:	AFT			

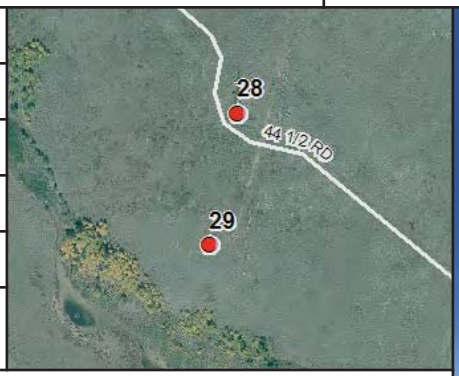


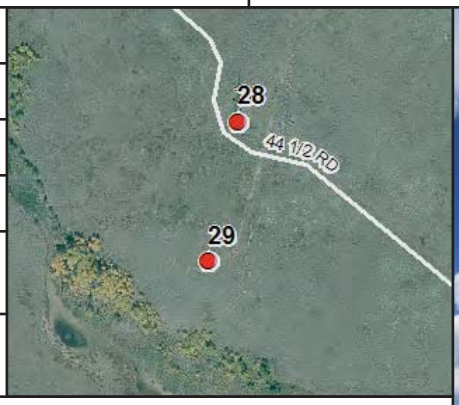
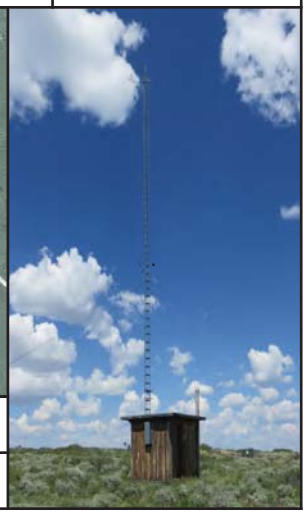
SITE 26: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Mesa County		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Mesa County		**LATITUDE:**	39-5-8.06 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-4.62 W
SITE ADDRESS:	625 44 1/2 Road, Mesa		**PLACE:**	Lands End
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:	TV Translator			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-154-00-939			
ZONING:	AFT			

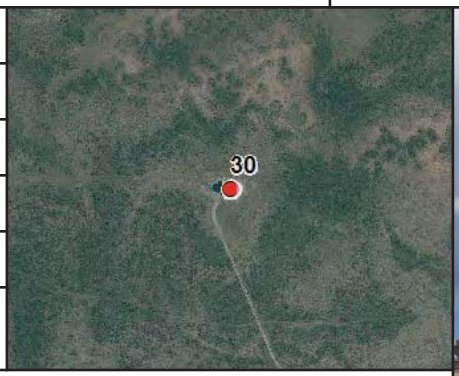


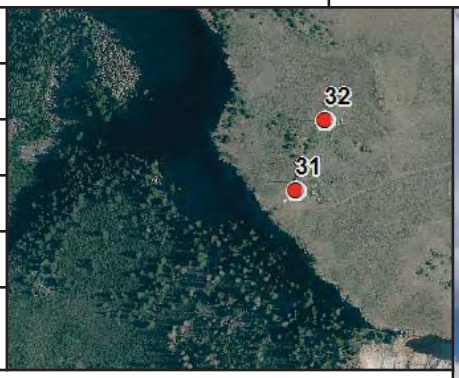


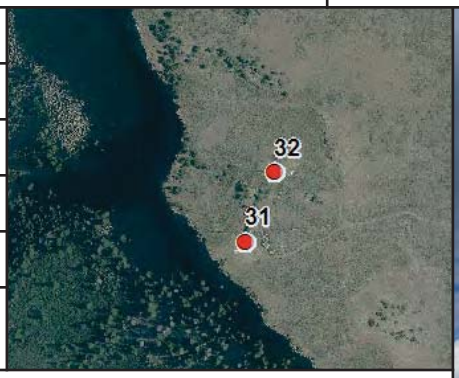
SITE 27: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Public Service Company of Colorado		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Public Service Company of Colorado		**LATITUDE:**	39-5-5.53 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-11.60 W
SITE ADDRESS:			**PLACE:**	Lands End
SITE NAME:				
TYPE:	1 Lattice; 1 Guyed			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL # :	2935-154-00-089			
ZONING:	AFT			

SITE 28: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Hawks Company Ranch, LLC		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:			**LATITUDE:**	39-5-1.07 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-13.28 W
SITE ADDRESS:			**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-221-00-026			
ZONING:	AFT			

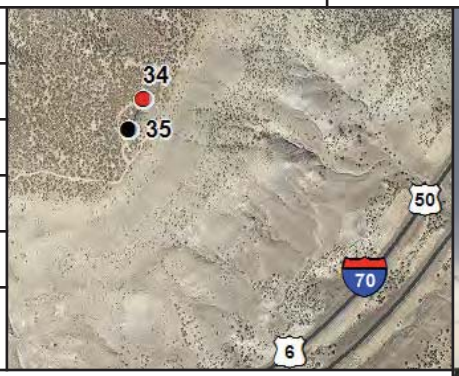
SITE 29 : NON ELIGIBLE TOWER				
PROPERTY OWNER:	Hawks Company Ranch, LLC		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	US Government (Abandoned)		**LATITUDE:**	39-4-57.81 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-14.27 W
SITE ADDRESS:			**PLACE:**	Lands End
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:				
WIRELESS PROVIDER:				
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL # :	2935-221-00-026			
ZONING:	AFT			

SITE 30: NON ELIGIBLE TOWER				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	US Government		**LATITUDE:**	39-3-43.67 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-12-49.91 W
SITE ADDRESS:			**PLACE:**	Lands End
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Doppler			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-344-00-946			
ZONING:	AFT			

SITE 31: NON ELIGIBLE TOWER				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	Pikes Peak Broadcasting Company		**LATITUDE:**	39-2-54.25 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-15-7.98 W
SITE ADDRESS:			**PLACE:**	Palisade Point
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:	Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2935-303-00-944			
ZONING:	AFT			

SITE 32: NON ELIGIBLE TOWER				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:			**LATITUDE:**	39-2-57.1 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-15-6.32 W
SITE ADDRESS:			**PLACE:**	Palisade Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unlikely			
PARCEL #:	2935-303-00-944			
ZONING:	AFT			

SITE 33: NON ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Powerhorn Real Estate		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	Comnet		**LATITUDE:**	39-4-15.24 N
IDENTIFICATION:	**ASR**: 1265975	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-9-0.65 W
SITE ADDRESS:	48295 Powderhorn Road, Mesa		**PLACE:**	Powderhorn
SITE NAME:	Four Corners			
TYPE:	Monopole			
HEIGHT:	40’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Comnet			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2933-203-00-242			
ZONING:	PUD			

SITE 34: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	Grand Junction Regional Communications Center		**LATITUDE:**	39-12-58.31 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-58-17.93 W
SITE ADDRESS:	397 Old 6 & 50, Mack		**PLACE:**	Rabbit Valley
SITE NAME:	Rabbit Valley			
TYPE:	Lattice			
HEIGHT:	161’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:	City			
POTENTIAL COLLOCATIONS:	Unlikely			
PARCEL #:	2687-094-00-914			
ZONING:	AFT			

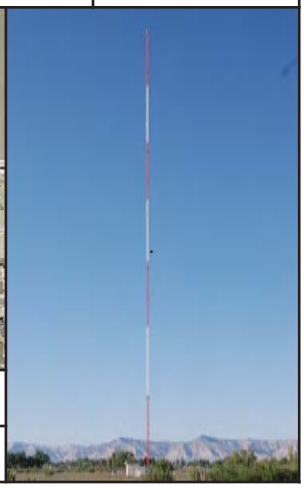
SITE 35: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-12-56.50 N
IDENTIFICATION:	**ASR**: 1224152	**FACILITY OWNER ID:** CO10458-A	**LONGITUDE:**	-108-58-19.05 W
SITE ADDRESS:	397 Old 6 & 50, Mack		**PLACE:**	Rabbit Valley
SITE NAME:	BLM Ridge			
TYPE:	Lattice			
HEIGHT:	199’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	3: AT&T; Clear Talk; Verizon(?)			
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL # :	2687-094-00-914			
ZONING:	AFT			

SITE 36: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	CAM-Colorado LLC		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-13-35.22 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** CO10479-A	**LONGITUDE:**	-108-52-36.72 W
SITE ADDRESS:	975 Old 6 & 50, Mack		**PLACE:**	Mack
SITE NAME:	Martin 4			
TYPE:	Lattice			
HEIGHT:	199’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	4: AT&T; Century Link; T-Mobile; Verizon			
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL #:	2683-343-00-239			
ZONING:	I-2			

SITE 37: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Mesa Grand, LLC		**ZONING JURISDICTION**	Fruita
FACILITY OWNER:	SBA		**LATITUDE:**	39-9-57.12 N
IDENTIFICATION:	**ASR:** 1213520(T)	**FACILITY OWNER ID**: CO10477-A	**LONGITUDE:**	-108-45-43.14 W
SITE ADDRESS:	1575 River Road, Fruita		**PLACE:**	Fruita
SITE NAME:	John Mansville			
TYPE:	Guyed Monopole			
HEIGHT:	188’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	4: AT&T; Sprint: T-Mobile; Verizon			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2693-124-02-004			
ZONING:	Industrial			

SITE 38: ELIGIBLE TOWER				
PROPERTY OWNER:	Lower Valley Fire District		**ZONING JURISDICTION**	Fruita
FACILITY OWNER:	Lower Valley Fire District		**LATITUDE:**	39-9-37.01 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-43-59.26 W
SITE ADDRESS:	168 N Mesa Street, Fruita		**PLACE:**	Fruita
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Emergency Services			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 3			
PARCEL # :	2697-172-53-944			
ZONING:	Community, Service & Recreation			

SITE 39: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Thomas & Mary Groves		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	Vertical Bridge		**LATITUDE:**	39-9-45.70 N
IDENTIFICATION:	**ASR**: 1272602	**FACILITY OWNER ID:** US-CO-5028	**LONGITUDE:**	-108-40-46.60 W
SITE ADDRESS:	2018 J 1/2 Road, Fruita		**PLACE:**	Lower Valley
SITE NAME:	Fruita			
TYPE:	Slick Stick			
HEIGHT:	160’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	Unknown			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2697-142-01-001			
ZONING:	AFT			

SITE 40: ELIGIBLE TOWER				
PROPERTY OWNER:	Maranatha Investment Partnership, LTD		**ZONING JURISDICTION**	Mesa County
FACILITY OWNER:	MBC Grand Broadcasting, Inc.		**LATITUDE:**	39-7-32.40 N
IDENTIFICATION:	**ASR:** 1234186	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-38-15.00 W
SITE ADDRESS:	2236 H Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Guyed			
HEIGHT:	299’			
ANTENNA TYPES:	Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2 or 3			
PARCEL # :	2701-303-00-189			
ZONING:	RSF-R			

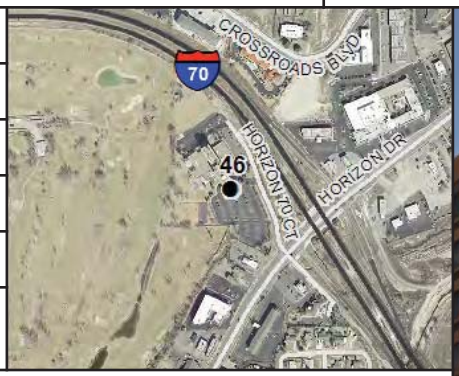
SITE 41: PROPOSED ELIGIBLE TOWER				
PROPERTY OWNER:	Maranatha Investment Partnership, LTD		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	MBC Grand Broadcasting, Inc.		**LATITUDE:**	39-7-31.29 N
IDENTIFICATION:	**ASR:** 1214685	**FACILITY OWNER ID:**	**LONGITUDE:**	108-38-21.08 W
SITE ADDRESS:	2236 H Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:			**Proposed Site. Picture Forthcoming if Constructed.**	
TYPE:	Not Constructed			
HEIGHT:	Proposed 298’			
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	2701-303-00-315			
ZONING:	RSF-R			

SITE 42: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Walker Field Public Airport Authority		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	FAA Air Traffic Control		**LATITUDE:**	39-7-16.40 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	108-31-30.18 W
SITE ADDRESS:	2828 Walker Field Drive, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	50’			
ANTENNA TYPES:	FAA Air Traffic Control			
SERVICE PROVIDER:	FAA Air Traffic Control			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2705-312-00-941			
ZONING:	PAD			

SITE 43: NON ELIGIBLE TOWER				
PROPERTY OWNER:	National Weather Service		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	National Weather Service		**LATITUDE:**	39-07-11.91 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	108-31-30.54 W
SITE ADDRESS:	2844 Aviators Way, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Attached Lattice			
HEIGHT:	20’			
ANTENNA TYPES:				
SERVICE PROVIDER:	NOAA			
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2705-312-00-918			
ZONING:	PAD			

SITE 44: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Reece Investments, LLC		**ZONING JURISDICTION:**	City of Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-7-0.60 N
IDENTIFICATION:	**ASR**: 1211360	**FACILITY OWNER ID:** CO10466-A	**LONGITUDE:**	-108-32-17.18 W
SITE ADDRESS:	761 Crossroads Court, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Crossroads 3			
TYPE:	Monopole			
HEIGHT:	99’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	3: AT&T; Verizon			
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL #:	2701-361-21-007			
ZONING:	C-1			

SITE 45: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	Robert J. Armantrout		**ZONING JURISDICTION**	Grand Junction
FACILITY OWNER:	Western Slope Communication		**LATITUDE:**	39-6-47.88 N
IDENTIFICATION:	**ASR**:	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-32-5.82 W
SITE ADDRESS:	751 Horizon Court, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	30’			
TYPE:	Rooftop Lattice			
HEIGHT:				
ANTENNA TYPES:	STL			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2701-364-26-033			
ZONING:	C-1			

SITE 46: ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	Grand Conjunction, LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Adams Mark/Double Tree		**LATITUDE:**	39-6-44.58 N
IDENTIFICATION:	**ASR**:	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-32-30.60 W
SITE ADDRESS:	743 Horizon Drive, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Antenna			
HEIGHT:	100’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	2: Unknown			
POTENTIAL COLLOCATIONS:	Yes			
PARCEL #:	2701-364-28-008			
ZONING:	C-1			

SITE 47: NON ELIGIBLE TOWER				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	City of Grand Junction		**LATITUDE:**	39-6-50.28 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-39-28.62 W
SITE ADDRESS:	2145 River Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Persigo Wastewater Treatment Plant			
TYPE:	Guyed			
HEIGHT:	110’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unlikely			
PARCEL #:	2697-363-00-941			
ZONING:	I-1			

SITE 48: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Craig Meier		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-6-11.88 N
IDENTIFICATION:	**ASR**: 1228862	**FACILITY OWNER ID:** CO10480-A	**LONGITUDE:**	-108-30-7.14 W
SITE ADDRESS:	688 29 1/2 Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Meier			
TYPE:	Monopole			
HEIGHT:	145’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	4: Cleartalk; Skybeam; T-Mobile; Verizon			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2943-051-91-003			
ZONING:	R-5			

SITE 49: ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	Clifton Water District		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Clifton Water District		**LATITUDE:**	39-6-21.96 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-27-6.30 W
SITE ADDRESS:	3248 I-70		**PLACE:**	Clifton
SITE NAME:				
TYPE:	Water Tank Antenna			
HEIGHT:	75’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2943-022-00-944			
ZONING:	AFT			

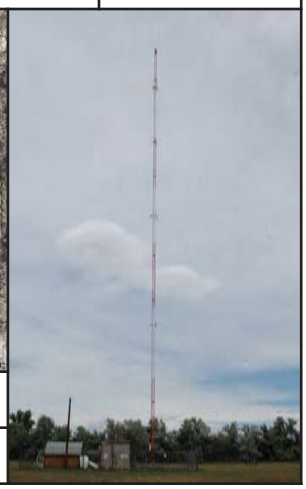
SITE 50: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Ronald E Tipping		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-5-55.56 N
IDENTIFICATION:	**ASR:** 1213603(T)	**FACILITY OWNER ID:** CO10488-A	**LONGITUDE:**	-108-37-50.34 W
SITE ADDRESS:	2297 River Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Redlands			
TYPE:	Guyed Monopole			
HEIGHT:	153’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	4: Cleartalk; Verizon, Unknown			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2945-064-23-001			
ZONING:	CSR			

SITE 51: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Public Service Company of Colorado		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Xcel Energy Services, Ind.		**LATITUDE:**	39-5-50.40 N
IDENTIFICATION:	**ASR**: 1284420	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-34-54.60 W
SITE ADDRESS:	2538 Blichman Avenue, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Monopole			
HEIGHT:	82’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-033-00-159			
ZONING:	I-O			

SITE 52: ELIGIBLE BASE STATION				
PROPERTY OWNER:	Gray Television Group		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	KKCO NBC 11 News		**LATITUDE:**	39-5-47.13 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	108-35-1.78 W
SITE ADDRESS:	2531 Blichmann Avenue, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Antenna			
HEIGHT:	30’			
ANTENNA TYPES:	Broadcast; Microwave; Satellite			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-033-17-001			
ZONING:	I-O			

SITE 53: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	HD Development of Maryland, Inc.		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Diamond Communications		**LATITUDE:**	39-5-44.88 N
IDENTIFICATION:	**ASR**: 1285118	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-36-8.40 W
SITE ADDRESS:	2436 Patterson Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Grand Junction-HD			
TYPE:	Concealed Flag Pole			
HEIGHT:	113’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2945-043-55-001			
ZONING:	C-1			

SITE 54: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	Bresnan Communications, LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Bresnan Communications, LLC		**LATITUDE:**	39-5-40.20 N
IDENTIFICATION:	**ASR**: 1288123	**FACILITY OWNER ID:** 11596 (KGI Wireless)	**LONGITUDE:**	-108-35-20.34 W
SITE ADDRESS:	2502 Foresight Circle, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Mix			
HEIGHT:	20’ or 30’			
ANTENNA TYPES:	STL; Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-033-07-030			
ZONING:	I-O			

SITE 55: ELIGIBLE TOWER				
PROPERTY OWNER:	Townsquare Media Grand Junction, LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Vertical Bridge		**LATITUDE:**	39-5-41.52 N
IDENTIFICATION:	**ASR**: 1024139	**FACILITY OWNER ID:** US-CO-8009	**LONGITUDE:**	-108-34-43.20 W
SITE ADDRESS:	25 1/2 Road. Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	2555 Dewey Place			
TYPE:	Guyed			
HEIGHT:	206’			
ANTENNA TYPES:	AM Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2 or 3			
PARCEL #:	2945-034-00-112			
ZONING:	R-16			

SITE 56: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	Sisters of Charity of Leavenworth Health Systems, Inc.		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	St. Mary’s Hospital		**LATITUDE:**	39-5-27.20 N
IDENTIFICATION:	**ASR:** 1270263	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-46.60 W
SITE ADDRESS:	2635 N 7th Street, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Mix			
HEIGHT:	222’			
ANTENNA TYPES:	Broadcast; Microwave			
SERVICE PROVIDER;				
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-112-28-001			
ZONING:	PD			

SITE 57: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Cellco Partnership DBA Verizon Wireless		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Cellco Partnership DBA Verizon Wireless		**LATITUDE:**	39-5-33.00 N
IDENTIFICATION:	**ASR**:	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-0.60 W
SITE ADDRESS:	2702 Patterson Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Concealed			
HEIGHT:	50’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2945-013-00-084			
ZONING:	R-8			

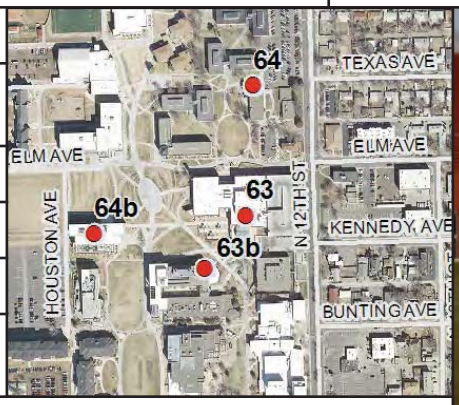
SITE 58: NON ELIGIBLE TOWER				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Fire Station		**LATITUDE:**	39-5-28.08 N
IDENTIFICATION:	**ASR**: 1216522	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-31-40.32 W
SITE ADDRESS:	2827 Patterson Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	149’			
ANTENNA TYPES:	Emergency Services			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unlikely			
PARCEL #:	2943-072-00-944			
ZONING:	CSR			

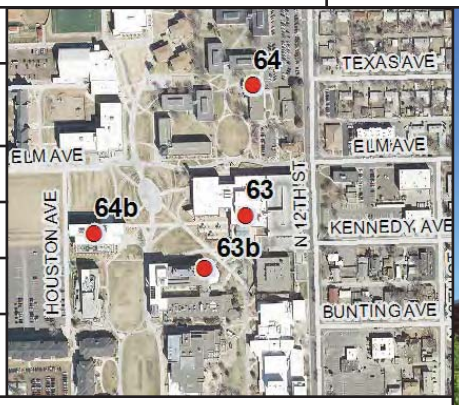
SITE 59 ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Crossroads United Methodist Church		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	AT&T Mobility Spectrum LLC		**LATITUDE:**	39-5-29.52 N
IDENTIFICATION:	**ASR**: 1280188	FACILITY OWNER ID:	**LONGITUDE:**	-108-29-53.46 W
SITE ADDRESS:	599 30 Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Concealed			
HEIGHT:	55’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: AT&T			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2943-081-00-951			
ZONING:	R-4			

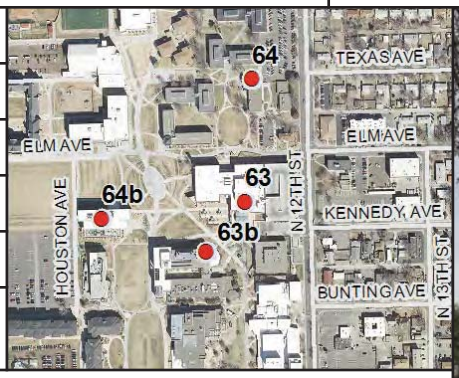
SITE 60: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	IPS Clifton AZ Investors, LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-5-10.98 N
IDENTIFICATION:	**ASR:** 1213521	**FACILITY OWNER ID:** CO10481-A	**LONGITUDE:**	-108-27-28.80 W
SITE ADDRESS:	3201-1/2 Highway 6 & 24, Grand Junction		**PLACE:**	Clifton
SITE NAME:	Mesa Pawn			
TYPE:	Monopole			
HEIGHT:	130’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	2: AT&T; T-Mobile			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2943-112-00-258			
ZONING:	C-2			

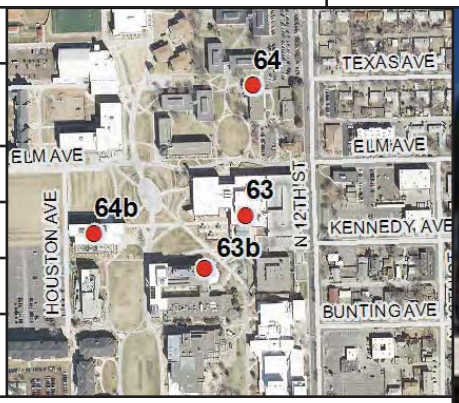
SITE 61: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	NTCH-Colorado Inc.		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-5-25.38 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**: CO10474-A	**LONGITUDE:**	-108-35-9.12 W
SITE ADDRESS:	589 N Commercial Drive, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Hokanson			
TYPE:	Guyed Monopole			
HEIGHT:	130’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	5: AT&T; Clear Talk; Quest; T-Mobile; Verizon			
POTENTIAL COLLOCATIONS:	Unlikely			
PARCEL #:	2945-102-13-013			
ZONING:	C-2			

SITE 62: NON ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	HOAK Media of Colorado, LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Nexstar Broadcasting, Inc.		**LATITUDE:**	39-5-16.80 N
IDENTIFICATION:	**ASR**: 1034539	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-34-0.48 W
SITE ADDRESS:	335 Hillcrest Boulevard, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	KREX			
TYPE:	Guyed			
HEIGHT:	343’			
ANTENNA TYPES:	Broadcast; PWSF			
SERVICE PROVIDER:	1: Unknown			
POTENTIAL COLLOCATIONS:	Yes - 2 or 3			
PARCEL #:	2945-112-27-004			
ZONING:	R-4			

SITE 63: NON ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	Colorado Mesa University		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-4-49.58 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-11.94 W
SITE ADDRESS:	1100 North Avenue, Grand Junction		**PLACE:**	GJ Urban CMU
SITE NAME:				
TYPE:	Rooftop Concealed Antenna			
HEIGHT:	60’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	AT&T			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2945-114-00-929			
ZONING:	CSR			

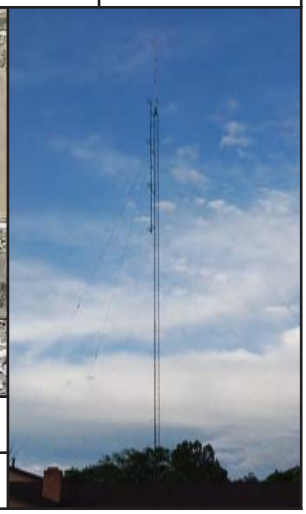
SITE 63b: NON ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	Colorado Mesa University		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-4-47.56 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-14.06 W
SITE ADDRESS:	1100 North Avenue, Grand Junction		**PLACE:**	GJ Urban CMU
SITE NAME:	Wubben Hall			
TYPE:	Rooftop Concealed Antenna			
HEIGHT:	55’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1:Verizon			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2945-114-00-929			
ZONING:	CSR			

SITE 64: NON ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Colorado Mesa University		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-4-54.67 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-11.37 W
SITE ADDRESS:	1151 Elm Avenue, Grand Junction		**PLACE:**	GJ Urban CMU
SITE NAME:				
TYPE:	Concealed Light			
HEIGHT:	49’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	T-Mobile			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2945-114-04-923			
ZONING:	CSR			

SITE 64b: NON ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	Colorado Mesa University		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-4-49.06 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-19.54 W
SITE ADDRESS:	1405 Houston Avenue, Grand Junction		**PLACE:**	GJ Urban CMU
SITE NAME:				
TYPE:	Rooftop Concealed Antenna			
HEIGHT:	55’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1:Sprint			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2945-114-25-921			
ZONING:	CSR			

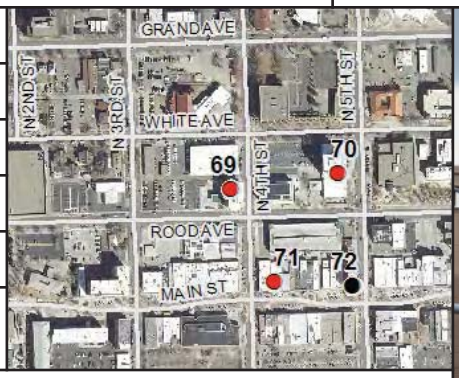
SITE 65: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	4th and Kennedy Avenue, LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Townsquare Media		**LATITUDE:**	39-4-46.26 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-34-0.42 W
SITE ADDRESS:	315 Kennedy Avenue, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Lattice			
HEIGHT:	40’			
ANTENNA TYPES:	STL			
SRVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-113-16-010			
ZONING:	B-1			

SITE 66: NON ELIGIBLE TOWER AND BASE STATION				
PROPERTY OWNER:	Maranatha Investment Partnership, LTD		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-4-47.28 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-34-4.80 W
SITE ADDRESS:	1360 E. Sherwood Drive, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop 2 Lattice			
HEIGHT:	55’			
ANTENNA TYPES:	STL			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-113-17-013			
ZONING:	B-1			

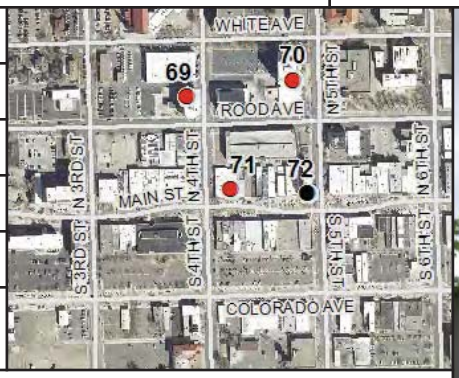
SITE 67: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	Pear Park Baptist Church		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Pear Park Baptist Church		**LATITUDE:**	39-4-39.48 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-28-38.76 W
SITE ADDRESS:	3102 E Road, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Guyed			
HEIGHT:	110’			
ANTENNA TYPES:	Business Broadband			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unlikely			
PARCEL #:	2943-103-00-952			
ZONING:	RSF-R			

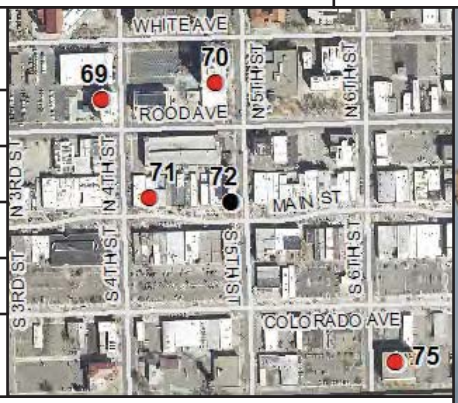
SITE 68: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	NTCH Colorado, Inc		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-4-24.66 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** CO10468-A	**LONGITUDE:**	-108-29-59.22 W
SITE ADDRESS:	2982 Gunnison Avenue, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	E-Babe			
TYPE:	Monopole			
HEIGHT:	99’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	2: Verizon; Unknown			
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL #:	2943-171-07-010			
ZONING:	I-1			

SITE 69: NON ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	Home Loan Bank Building Corp.		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Verizon		**LATITUDE:**	39-4-7.08 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-59.04 W
SITE ADDRESS:	205 N 4th Street, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Antenna			
HEIGHT:	60’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-143-10-007			
ZONING:	B-2			



SITE 70: NON ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	ENIPLA Building Company		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Alpine Bank		**LATITUDE:**	39-4-7.62 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-53.34 W
SITE ADDRESS:	225 N 5th Street, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Alpine Bank			
TYPE:	Rooftop Mix			
HEIGHT:	200’			
ANTENNA TYPES:	Emergency Services; PWSF			
SERVICE PROVIDER:	1: AT&T			
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-143-09-010			
ZONING:	B-2			

SITE 71: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	Bucklin Family Properties		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Colorado Public Radio		**LATITUDE:**	39-4-3.18 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-56.82 W
SITE ADDRESS:	414 Main Street, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Mix			
HEIGHT:	30’			
ANTENNA TYPES:	STL			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-143-16-008			
ZONING:	B-2			

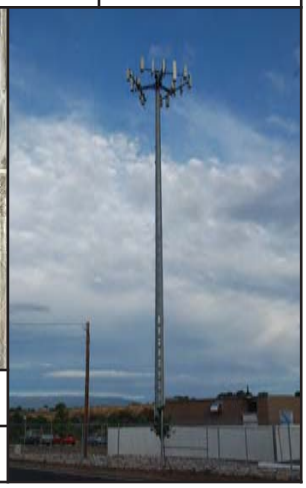
SITE 72: ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	HR Adventures, LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Dalby, Wendland & Company		**LATITUDE:**	39-4-2.94 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-52.74 W
SITE ADDRESS:	464 Main Street, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Dalby, Wendland & Company			
TYPE:	Rooftop Antenna			
HEIGHT:	80’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: T-Mobile			
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-143-16-018			
ZONING:	B-2			

SITE 73: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Qwest		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Qwest		**LATITUDE:**	39-4-2.82 N
IDENTIFICATION:	**ASR: 1030313**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-33.00 W
SITE ADDRESS:	800 Main Street, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	205’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER;	Qwest - Century Link			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2945-144-16-019			
ZONING:	B-2			

SITE 74: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	City of Grand Junction Police Department		**LATITUDE:**	39-3-53.46 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-48.24 W
SITE ADDRESS:	555 Ute Avenue, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Lattice			
HEIGHT:	70’			
ANTENNA TYPES:	Emergency Services			
SERVICE PROVIDER:	City of Grand Junction			
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-143-64-941			
ZONING:	B-2			

SITE 75: NON ELIGIBLE BASE STATION				
PROPERTY OWNER:	State of Colorado & Department of Administration		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	State of Colorado		**LATITUDE:**	39-3-56.52 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-44.76 W
SITE ADDRESS:	222 S 6th Street, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:				
TYPE:	Rooftop Lattice			
HEIGHT:	95’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-143-30-921			
ZONING:	B-2			

SITE 76: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Landmark Baptist Church of GJ Inc.		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-3-58.80 N
IDENTIFICATION:	**ASR:** 1213517	**FACILITY OWNER ID**: CO10493-A	**LONGITUDE:**	-108-32-43.14 W
SITE ADDRESS:	1600 Ute Avenue, Grand Junction		**PLACE:**	GJ Urban
SITE NAME:	Switch			
TYPE:	Monopole			
HEIGHT:	150’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDERS	4: Clear Talk; Sprint; Unknown			
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2945-133-00-045			
ZONING:	C-1			

SITE 77: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Clifton Sanitation District		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Verizon Wireless		**LATITUDE:**	39-3-45.42 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**: 413923	**LONGITUDE:**	-108-27-12.12 W
ADDRESS:	3227 D Road, Clifton		**PLACE:**	Clifton
SITE NAME:	CO3 Palomino			
TYPE:	Monopole			
HEIGHT:	100’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL #:	2943-232-00-942			
ZONING:	AFT			

SITE 78: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	New Cingular Wireless PCS LLC		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Crown Castle International		**LATITUDE:**	39-3-29.16 N
IDENTIFICATION:	**ASR:** 1032049	**FACILITY OWNER ID:** 855748	**LONGITUDE:**	-108-32-13.98 W
ADDRESS:	2784 Winters Avenue, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Grand Junction			
TYPE:	Guyed			
HEIGHT:	503’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	1: AT&T			
POTENTIAL COLLOCATIONS:	Yes - 3			
PARCEL #:	2945-241-00-238			
ZONING:	I-2			

SITE 79: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Colorado RSA #3 LP Acting		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	American Tower Corporation		**LATITUDE:**	39-3-23.22 N
IDENTIFICATION:	**ASR**: 1022234	**FACILITY OWNER ID:** 82102	**LONGITUDE:**	-108-31-48.48 W
ADDRESS:	2816 C 1/2 Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Grand Junction			
TYPE:	Guyed			
HEIGHT:	260’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Yes -3			
PARCEL # :	2943-192-00-038			
ZONING:	RSF-R			

SITE 80: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Crown Castle International		**LATITUDE:**	39-4-38.76 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** 857401	**LONGITUDE:**	-108-40-7.86 W
ADDRESS:	2057 S Broadway, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Redlands 2			
TYPE:	Monopole			
HEIGHT:	60’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: AT&T			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2947-223-00-948			
ZONING:	CSR			

SITE 81: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Grand Junction Land CO., LLC		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	Grand Junction Regional Communications Center		**LATITUDE:**	39-3-40.80 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-38-25.32 W
ADDRESS:	400 23 Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	CO3 Ravenwood			
TYPE:	Lattice			
HEIGHT:	110’			
ANTENNA TYPES:	PWSF; Wireless Broadband			
SERVICE PROVIDER:	2: SBT Wireless Broadband; Verizon			
POTENTIAL COLLOCATIONS:	Possibly - 1			
PARCEL # :	2945-184-00-098			
ZONING:	PD			

SITE 82: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Ute Water Conservancy District		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-3-40.20 N
IDENTIFICATION:	**ASR**: 1236331	**FACILITY OWNER ID**: CO10496-A	**LONGITUDE:**	-108-38-18.90 W
ADDRESS:	380 South Camp Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Ute Water			
TYPE:	Monopole			
HEIGHT:	81’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	2: AT&T; T-Mobile			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-192-00-947			
ZONING:	PD			

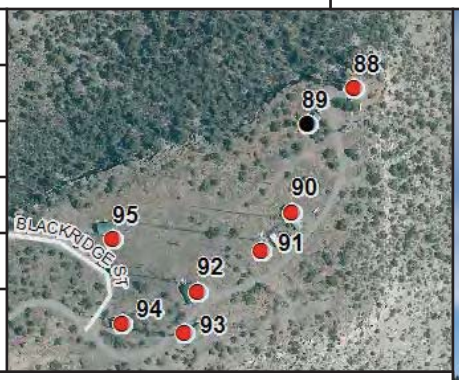
SITE 83: ELIGIBLE TOWER				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	City of Grand Junction		**LATITUDE:**	39-2-22.20 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-46.32 W
ADDRESS:	244 26 1/4 Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Infiltration Plant			
TYPE:	Lattice			
HEIGHT:	135’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 3			
PARCEL # :	2945-263-00-945			
ZONING:	CSR			

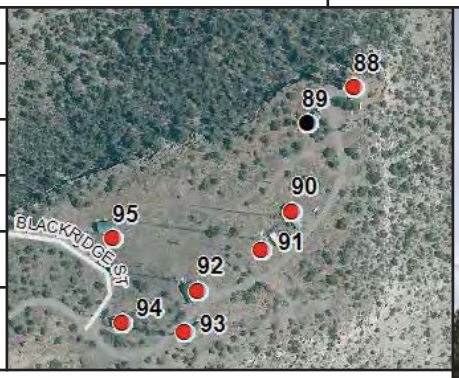
SITE 84: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Staton Family Trust		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	SBA		**LATITUDE:**	39-2-17.22 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** CO 10492-A	**LONGITUDE:**	-108-33-28.68 W
ADDRESS:	235 Linden Avenue, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Staton			
TYPE:	Monopole			
HEIGHT:	82’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	1: Clear Talk			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2945-264-00-053			
ZONING:	R-2			

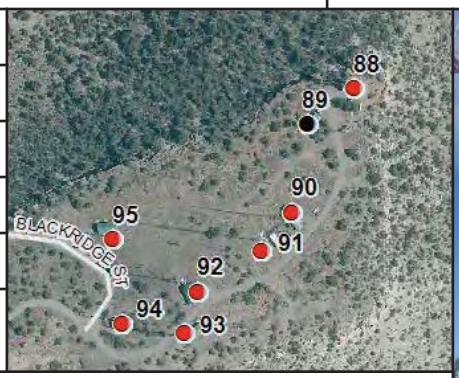
SITE 85: NON-ELIGIBLE TOWER				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	City of Grand Junction		**LATITUDE:**	39-2-16.26 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-41.40 W
ADDRESS:	244 26 1/4 Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Water Treatment Plant			
TYPE:	Lattice			
HEIGHT:	88’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2945-264-00-946			
ZONING:	CSR			

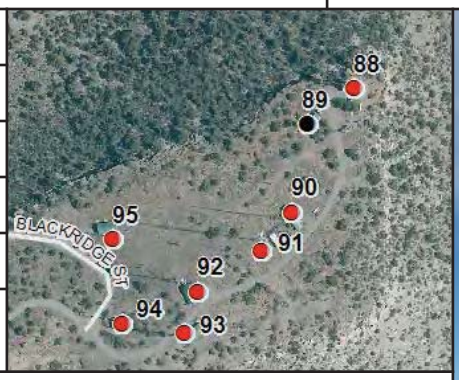
SITE 86: NON ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-1-7.338 N
IDENTIFICATION:	**ASR**: 1221440	**FACILITY OWNER ID:** CO 12022-A	**LONGITUDE:**	-108-31-45.188 W
ADDRESS:	121 29 Road, Grand Junction		**PLACE:**	Orchard Mesa
SITE NAME:	Grand Junction 2 Term.			
TYPE:	Lattice			
HEIGHT:	66’			
ANTENNA TYPES:	Microwave; PWSF			
SERVICE PROVIDER:	1: Unknown			
POTENTIAL COLLOCATIONS:	Possibly - 1			
PARCEL #:	2967-064-00-914			
ZONING:	AFT			

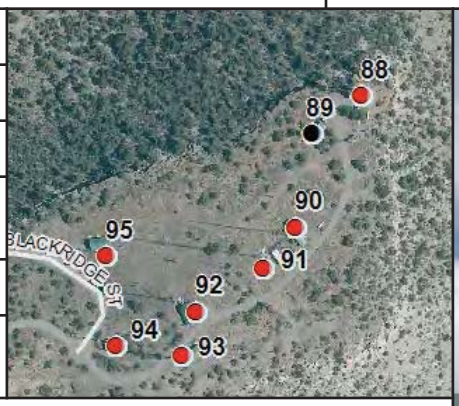
SITE 87: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Charles and Sandra Durcray		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-0-58.26 N
IDENTIFICATION:	**ASR**: 1215656	**FACILITY OWNER ID:** CO 10467-A	**LONGITUDE:**	-108-29-21.96 W
ADDRESS:	63 31 Road, Grand Junction		**PLACE:**	Orchard Mesa
SITE NAME:	Ducray			
TYPE:	Lattice			
HEIGHT:	165’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	6: AT&T; Cleartalk; Skybeam; Texas Telecom; Union Wireless; Verizon			
POTENTIAL COLLOCATIONS:	Yes - 3			
PARCEL # :	2967-042-00-197			
ZONING:	AFT			

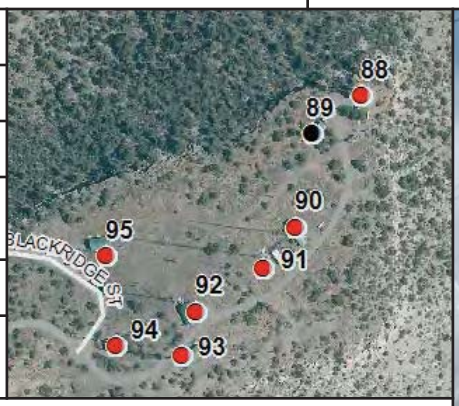
SITE 88: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Public Service Company		**LATITUDE:**	39-4-2.25 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** COC33326	**LONGITUDE:**	-108-44-40.96 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	2949-143-00-914			
ZONING:	AFT			

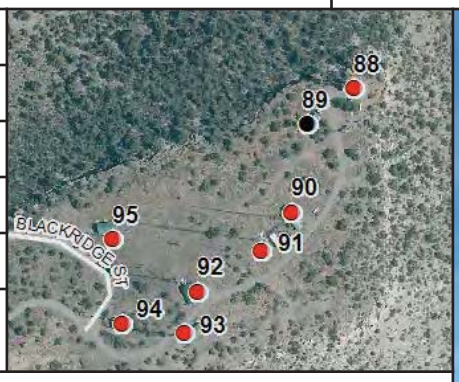
SITE 89: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	American Tower Corporation		**LATITUDE:**	39-4-1.53 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** 82129	**LONGITUDE:**	-108-44-42.19 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:	Mack #2			
TYPE:	Lattice			
HEIGHT:	87’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL # :	2949-143-00-914			
ZONING:	AFT			

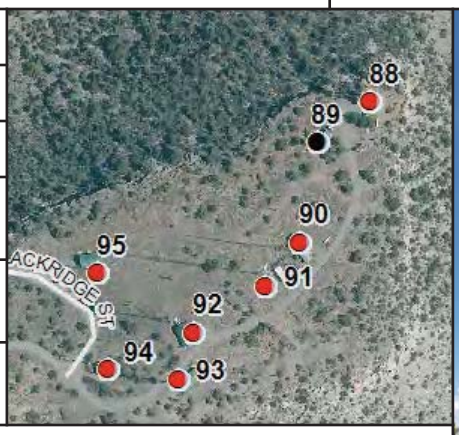
SITE 90: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	MBC Grand Broadcasting		**LATITUDE:**	39-3-59.72 N
IDENTIFICATION:	**ASR**:1022341	**FACILITY OWNER ID:** COC65086	**LONGITUDE:**	-108-44-42.69 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Guyed			
HEIGHT:	230’			
ANTENNA TYPES:	FM Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL #:	2949-143-00-914			
ZONING:	AFT			

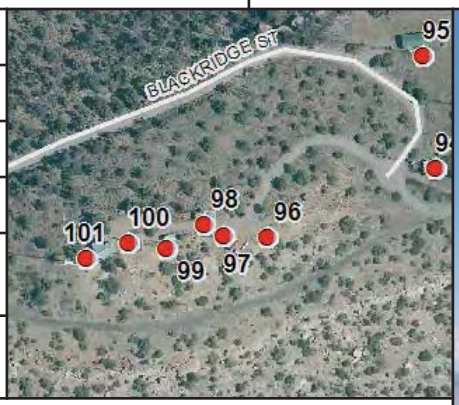
SITE 91: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	MBC Grand Broadcasting		**LATITUDE:**	39-3-58.93 N
IDENTIFICATION:	**ASR**: 1226999	**FACILITY OWNER ID:** COC65086	**LONGITUDE:**	-108-44-43.50 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Guyed			
HEIGHT:	345’			
ANTENNA TYPES:	FM Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL # :	2949-143-00-914			
ZONING:	AFT			

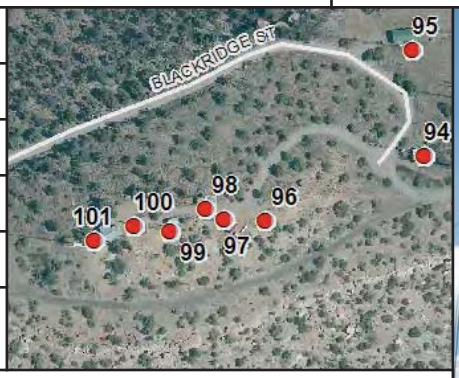
SITE 92: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Colorado Public Radio & Western Slope Communications		**LATITUDE:**	39-3-58.12 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**: COC40258 & COC56792	**LONGITUDE:**	-108-44-45.39 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:	Broadcast; Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	2949-143-00-914			
ZONING:	AFT			

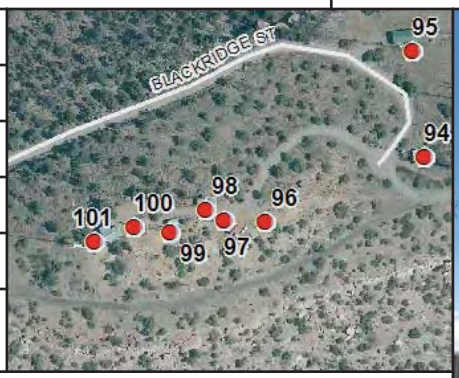
SITE 93: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Hoak Media		**LATITUDE:**	39-3-57.26 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** COC057910	**LONGITUDE:**	-108-44-45.62 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:	Broadcast; Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2949-143-00-914			
ZONING:	AFT			

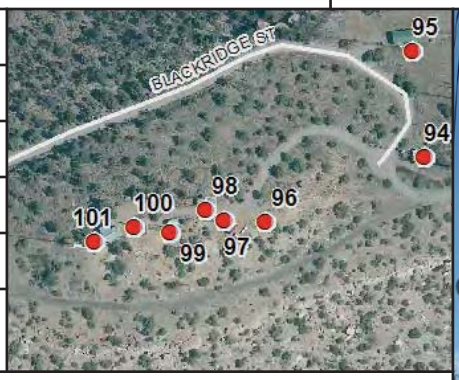
SITE 94: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Educational Media Foundation		**LATITUDE:**	39-3-57.49 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** COC50803	**LONGITUDE:**	-108-44-47.25 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	FM Broadcast			
SERVICE PROVIDER:	KLove 90.3			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	2949-143-00-914			
ZONING:	AFT			

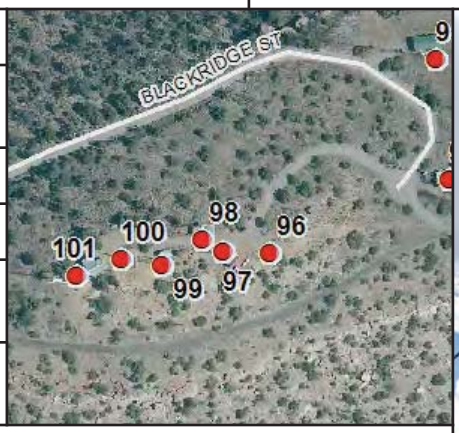
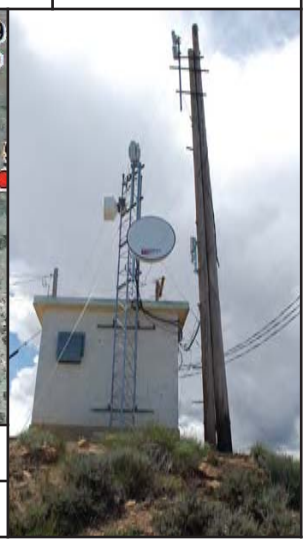
SITE 95: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Gray Television		**LATITUDE:**	39-3-59.25 N
IDENTIFICATION:	**ASR:** 1235966	**FACILITY OWNER ID**: COC65087	**LONGITUDE:**	-108-44-47.45 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Guyed			
HEIGHT:	303’			
ANTENNA TYPES:	Broadcast; Microwave			
SERVICE PROVIDER:	KKCO NBC 11 New			
POTENTIAL COLLOCATIONS:	Yes - 3 or 4			
PARCEL # :	2949-143-00-914			
ZONING:	AFT			

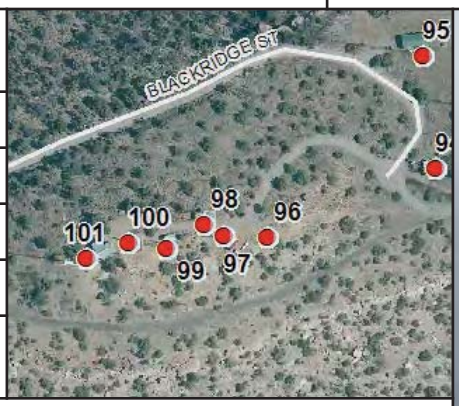
SITE 96: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Delta Airlines		**LATITUDE:**	39-3-56.49 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** COC029019	**LONGITUDE:**	-108-44-50.67 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	1 Guyed; 1 Lattice			
HEIGHT:				
ANTENNA TYPES:	Unsure			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2949-143-00-914			
ZONING:	AFT			

SITE 97: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Grand Junction Regional Communications Center		**LATITUDE:**	39-3-56.52 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-44-51.53 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2949-143-00-914			
ZONING:	AFT			

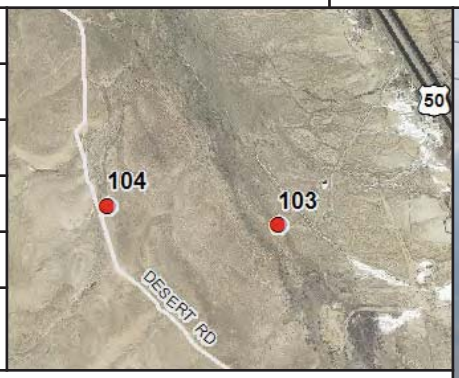
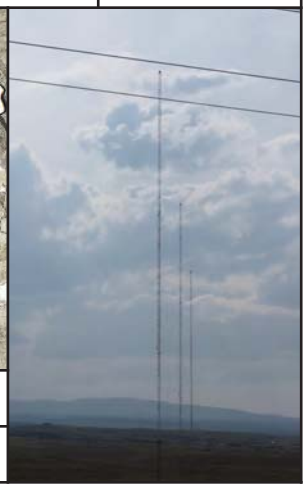
SITE 98: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Northwest Pipeline Corporation		**LATITUDE:**	39-3-56.71 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**: COC014055	**LONGITUDE:**	-108-44-51.93 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2949-143-00-914			
ZONING:	AFT			

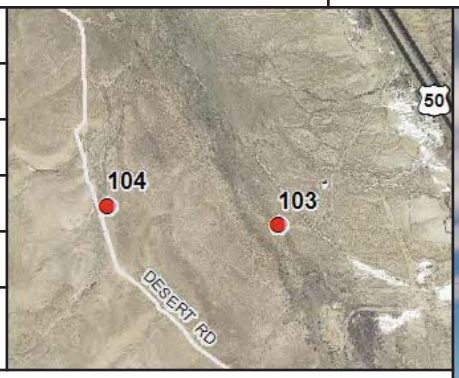
SITE 99: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Mesa County & Civil Air Patrol		**LATITUDE:**	39-3-56.34 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** COC29323 & COC8874	**LONGITUDE:**	-108-44-52.71 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	2949-143-00-914			
ZONING:	AFT			

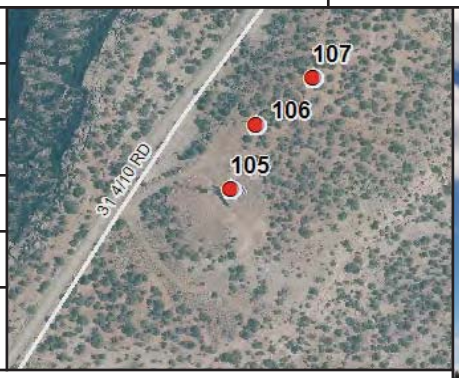
SITE 100: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Qwest		**LATITUDE:**	39-3-56.44 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** COC013068	**LONGITUDE:**	-108-44-53.45 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:				
TYPE:	1 Guyed; 1 Wood Pole			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2949-143-00-914			
ZONING:	AFT			

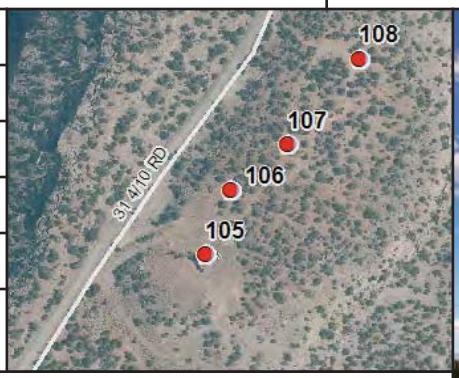
SITE 101: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	American Tower Corporation		**LATITUDE:**	39-3-56.22 N
IDENTIFICATION:	**ASR**: 1022763	**FACILITY OWNER ID**: 370620 & 370621	**LONGITUDE:**	-108-44-54.32 W
ADDRESS:	3471 N 16 1/2 Road, Fruita		**PLACE:**	Black Ridge
SITE NAME:	Grand Junction 3-A & B			
TYPE:	2 Guyed Towers			
HEIGHT:	200’ & 350’			
ANTENNA TYPES:	FM Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2 or 3			
PARCEL # :	2949-143-00-914			
ZONING:	AFT			

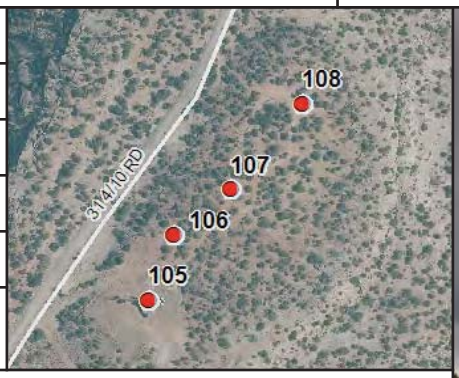
SITE 102: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	39-3-30.77 N
IDENTIFICATION:	**ASR**: 1046560	**FACILITY OWNER ID:** CO30729-M	**LONGITUDE:**	-108-46-14.91 W
ADDRESS:	Glade Park Peake		**PLACE:**	Glade Park
SITE NAME:	Union Pacific-Glade Park (Mic)			
TYPE:	Guyed			
HEIGHT:	160’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Yes - 2			
PARCEL #:	2949-273-00-914			
ZONING:	AFT			

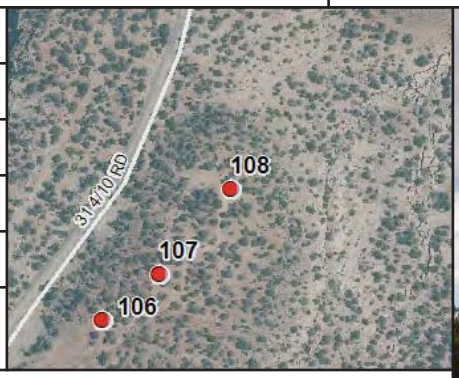
SITE 103: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	City of Grand Junction		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	MBC Grand Broadcasting		**LATITUDE:**	38-57-5.00 N
IDENTIFICATION:	**ASR**: 1062340, 1062341, 1062342	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-25-18.00 W
ADDRESS:	4351 Highway 50, White Water		**PLACE:**	White Water
SITE NAME:				
TYPE:	3 Guyed			
HEIGHT:	346’			
ANTENNA TYPES:	AM Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL # :	2969-303-00-949			
ZONING:	RSF-2			

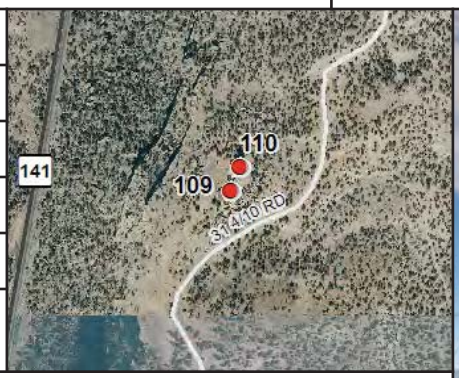
SITE 104: NON ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Randy and Laura Swope		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	American Tower Corporation		**LATITUDE:**	38-56-7.59 N
IDENTIFICATION:	**ASR:** 1213477	**FACILITY OWNER ID:** 35226	**LONGITUDE:**	108-23-36.60 W
ADDRESS:	101 Kannah Creek, White Water		**PLACE:**	White Water
SITE NAME:	Bean Ranch			
TYPE:	Lattice			
HEIGHT:	190’			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Texas Telecom			
POTENTIAL COLLOCATIONS:	Yes - 5			
PARCEL #:	2969-324-00-195			
ZONING:	AFT			

SITE 105: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Colorado State		**LATITUDE:**	38-53-52.84 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-29-48.27 W
ADDRESS:	884 Highway 141, White Water		**PLACE:**	Nine Mile
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	3205-314-00-914			
ZONING:	AFT			

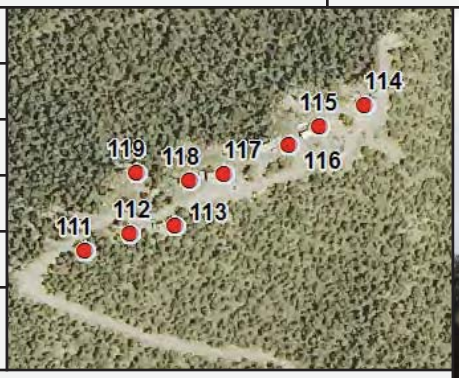
SITE 106: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Union Pacific Railroad		**LATITUDE:**	38-53-54.18 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**: COMOS00455	**LONGITUDE:**	-108-29-47.54 W
ADDRESS:	884 Highway 141, White Water		**PLACE:**	Nine Mile
SITE NAME:	White Water			
TYPE:	Wood Pole			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3205-314-00-914			
ZONING:	AFT			

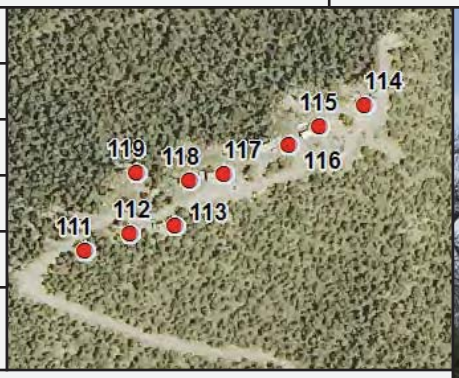
SITE 107: NON ELIGIBLE TOWERS				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Mountain Communication		**LATITUDE:**	38-53-55.11 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**:	**LONGITUDE:**	-108-29-46.01 W
ADDRESS:	884 Highway 141, White Water		**PLACE:**	Nine Mile
SITE NAME:				
TYPE:	1 Guyed; 1 Lattice			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL # :	3205-314-00-914			
ZONING:	AFT			

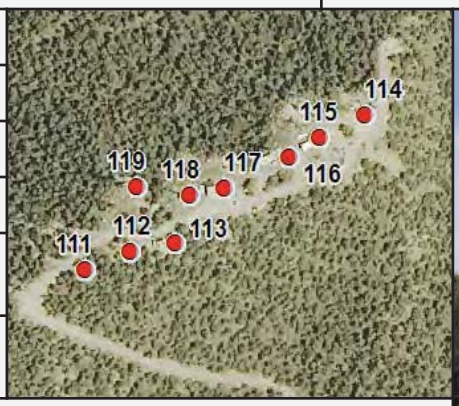
SITE 108: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Nexstar Broadcasting		**LATITUDE:**	38-53-56.86 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-29-44.05 W
ADDRESS:	884 Highway 141, White Water		**PLACE:**	Nine Mile
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3205-314-00-914			
ZONING:	AFT			

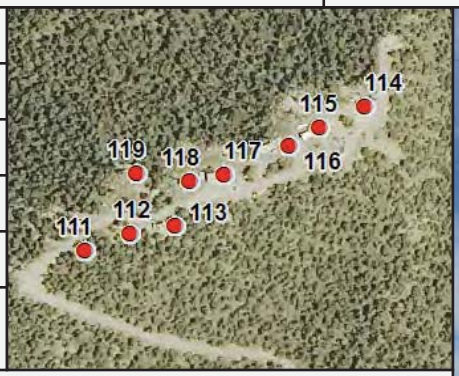
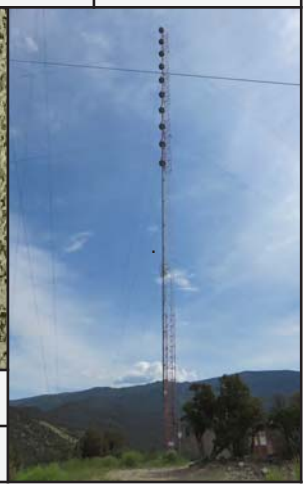
SITE 109: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	American Tower Corporation		**LATITUDE:**	38-54-9.76 N
IDENTIFICATION:	**ASR**: 1024244	**FACILITY OWNER ID:** 88834	**LONGITUDE:**	-108-29-43.51 W
ADDRESS:	884 Highway 141, White Water		**PLACE:**	Nine Mile
SITE NAME:	White Water			
TYPE:	Lattice			
HEIGHT:	106’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL # :	3205-314-00-914			
ZONING:	AFT			

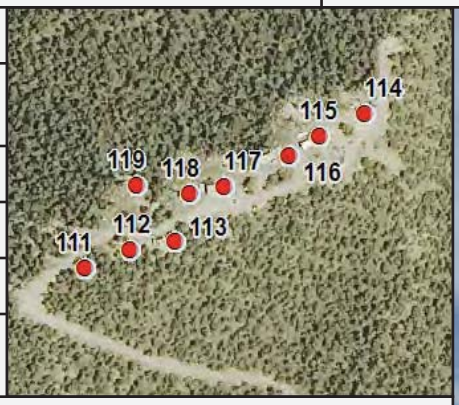
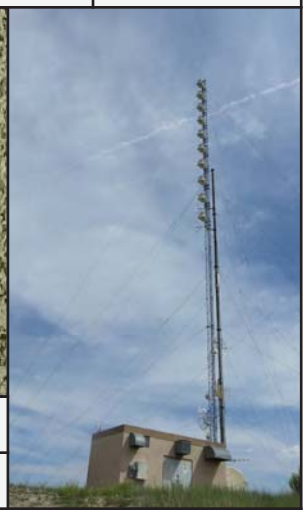
SITE 110: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	American Tower Corporation		**LATITUDE:**	38-54-10.74 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-29-42.96 W
ADDRESS:	884 Highway 141, White Water		**PLACE:**	Nine Mile
SITE NAME:				
TYPE:	Self Support			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3205-314-00-914			
ZONING:	AFT			

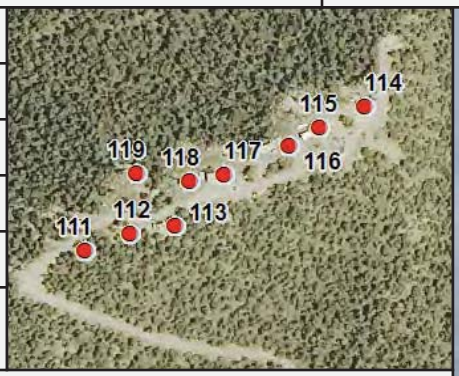
SITE 111: UNKNOWN ELIGIBILITY - TOWER OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:			**LATITUDE:**	38-52-37.68 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-40.42 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	50’			
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3199-251-00-001			
ZONING:				

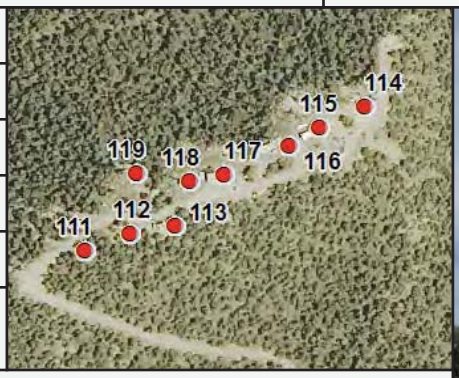
SITE 112: UNKNOWN ELIGIBILITY - TOWER OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:			**LATITUDE:**	38-52-38.02 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-39.22 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	25’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3199-251-00-001			
ZONING:				

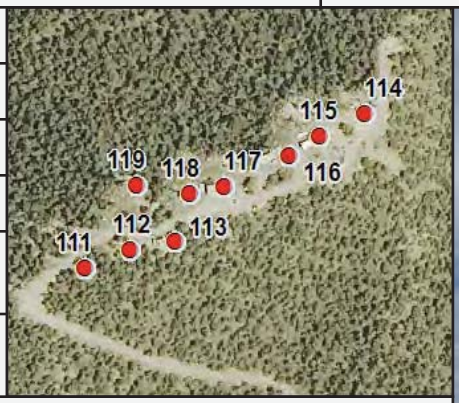
SITE 113: UNKNOWN ELIGIBILITY - TOWER WITH PWSF OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:	American Tower Corporation		**LATITUDE:**	38-52-38.15 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** 82116	**LONGITUDE:**	-108-13-38.03 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:	Hwy 50			
TYPE:	Monopole			
HEIGHT:	65’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:	Yes - 1			
PARCEL #:	3199-251-00-001			
ZONING:				

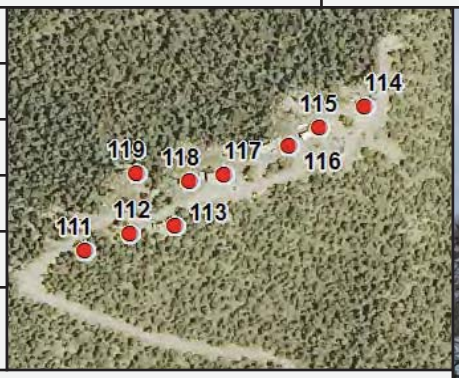
SITE 114: UNKNOWN ELIGIBILITY - TOWER OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:	MBC Grand Broadcasting		**LATITUDE:**	38-52-40.52 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-32.92 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Guyed			
HEIGHT:	105’			
ANTENNA TYPES:	FM Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	3199-251-00-001			
ZONING:				

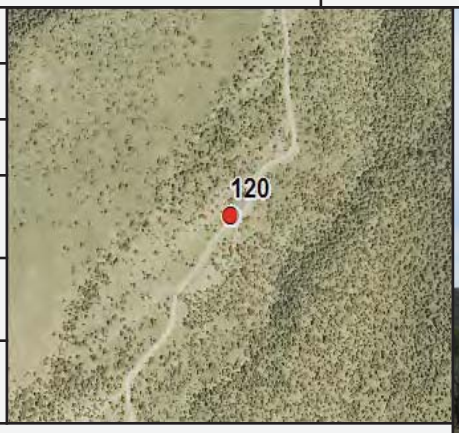
SITE 115: UNKNOWN ELIGIBILITY - TOWERS OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:			**LATITUDE:**	38-52-40.12 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-34.14 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	1 Guyed & 1 Wood Pole			
HEIGHT:	95’ & 50’			
ANTENNA TYPES:	Broadcast			
SERVICE PROVIDER:	KKNN FM			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	3199-251-00-001			
ZONING:				

SITE 116: UNKNOWN ELIGIBILITY - TOWER WITH PWSF OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:	AT&T		**LATITUDE:**	38-52-39.76 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-34.96 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Monopole			
HEIGHT:	30’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	1: AT&T			
POTENTIAL COLLOCATIONS:	Possibly			
PARCEL #:	3199-251-00-001			
ZONING:				

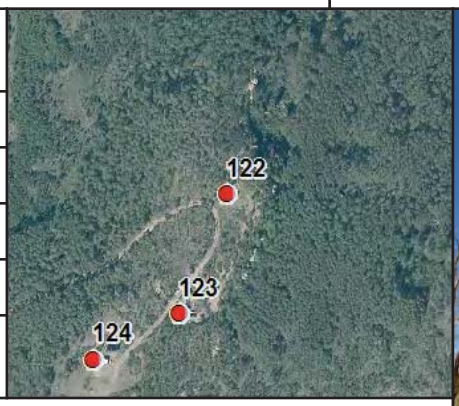
SITE 117: UNKNOWN ELIGIBILITY - TOWER OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:			**LATITUDE:**	38-52-39.20 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-36.70 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Guyed			
HEIGHT:	75’			
ANTENNA TYPES:	FM Broadcast			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	3199-251-00-001			
ZONING:				

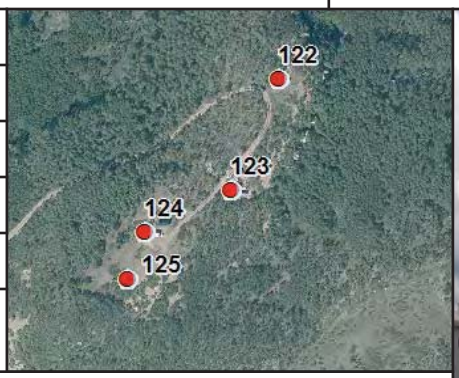
SITE 118: UNKNOWN ELIGIBILITY - TOWER OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:			**LATITUDE:**	38-52-39.07 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-37.60 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	35’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3199-251-00-001			
ZONING:				

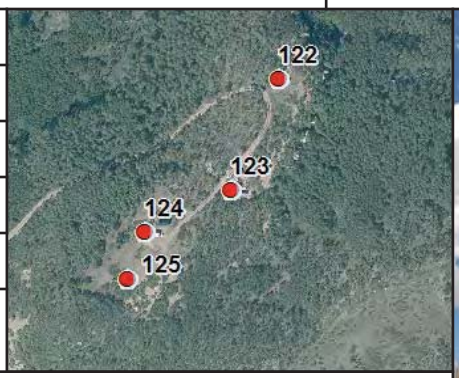
SITE 119: UNKNOWN ELIGIBILITY - TOWER OUTSIDE STUDY AREA				
PROPERTY OWNER:	United States Department of Agriculture (Grand Mesa National Forest)		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:	FAA		**LATITUDE:**	38-52-39.27 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-13-39.00 W
ADDRESS:			**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	50’			
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:	FAA			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3199-251-00-001			
ZONING:				

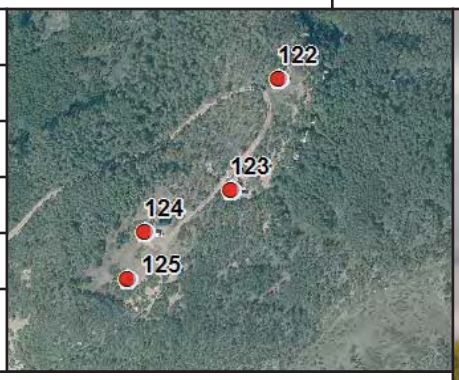
SITE 120: UNKNOWN ELIGIBILITY - TOWER OUTSIDE STUDY AREA				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Delta County
FACILITY OWNER:	BLM Test Site		**LATITUDE:**	38-52-6.20 N
IDENTIFICATION:	ASR:	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-14-14.80 W
ADDRESS:	Mesa Point Road below Mesa Point		**PLACE:**	Mesa Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Weather Data Collection			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3233-011-00-001			
ZONING:				

SITE 121: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Michael and Barbara Matthes		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	SBA		**LATITUDE:**	38-52-15.18 N
IDENTIFICATION:	**ASR**: 1216012	**FACILITY OWNER ID**: CO10487-A	**LONGITUDE:**	-108-20-37.08 W
ADDRESS:	5113 Highway 50, White Water		**PLACE:**	White Water
SITE NAME:	Quartz			
TYPE:	Lattice			
HEIGHT:	198’			
ANTENNA TYPES:	PWSF; Microwave			
SERVICE PROVIDER:	4: AT&T; Cleartalk; Texas Tele-communications; Union Wireless			
POTENTIAL COLLOCATIONS:	Yes - 4			
PARCEL #:	3203-262-00-214			
ZONING:	AFT			

SITE 122: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Uncompahgre National Forest		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Crown Castle International		**LATITUDE:**	38-34-39.75 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID**: 856591	**LONGITUDE:**	-108-38-46.37 W
ADDRESS:	25 1/10 Road, White Water		**PLACE:**	Uncompahgre Butte
SITE NAME:	Uncompahgre Butte Rerad			
TYPE:	Guyed			
HEIGHT:	70’			
ANTENNA TYPES:				
SERVICE PROVIDER:	1: AT&T			
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	3735-034-00-913			
ZONING:	AFT			

SITE 123: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Uncompahgre National Forest		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Nucla Naturita Phone Company		**LATITUDE:**	38-34-37.05 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-38-47.99 W
ADDRESS:	25 1/10 Road, White Water		**PLACE:**	Uncompahgre Butte
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Microwave			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	Unknown			
PARCEL #:	3735-034-00-913			
ZONING:	AFT			

SITE 124: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Uncompahgre National Forest		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Grand Junction Regional Communications Center		**LATITUDE:**	38-34-36.08 N
IDENTIFICATION:	ASR:	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-38-50.77 W
ADDRESS:	25 1/10 Road, White Water		**PLACE:**	Uncompahgre Butte
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	80’			
ANTENNA TYPES:	Microwave; PWSF			
SERVICE PROVIDER:	AT&T			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3735-034-00-913			
ZONING:	AFT			

SITE 125: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Uncompahgre National Forest		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Ham Radio Club		**LATITUDE:**	38-34-34.87 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-38-51.37 W
ADDRESS:	25 1/10 Road, White Water		**PLACE:**	Uncompahgre Butte
SITE NAME:				
TYPE:	Guyed			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	3735-034-00-913			
ZONING:	AFT			

SITE 126: PROPOSED ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Donna S. Pederson Co-Trustee		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-5-2.40 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-35-38.40 W
ADDRESS:	2485 Highway 6 & 50, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:				
TYPE:	Flagpole			
HEIGHT:				
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:				
PARCEL #:	2945-094-00-178			
ZONING:	C-2			

SITE 127: PROPOSED ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	School District 51		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-4-12.00 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-32-23.88 W
ADDRESS:	2115 Grand Avenue, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:				Proposed Site. Picture Forthcoming if Approved and Constructed.
TYPE:				
HEIGHT:				
ANTENNA TYPES:	Proposed PWSF			
SERVICE PROVIDER:	1: Verizon			
POTENTIAL COLLOCATIONS:				
PARCEL #:	2945-134-00-942			
ZONING:	C-2			

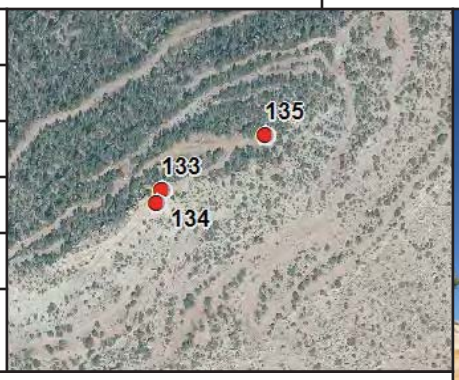
SITE 128: PROPOSED ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	School District 51 & Central High School		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-5-11.04 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-28-18.72 W
ADDRESS:	550 Warrior Way, Grand Junction		**PLACE:**	Central HS
SITE NAME:				Proposed Site. Picture Forthcoming if Approved and Constructed.
TYPE:				
HEIGHT:				
ANTENNA TYPES:	Proposed PWSF			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	2943-102-00-942			
ZONING:	R-O			

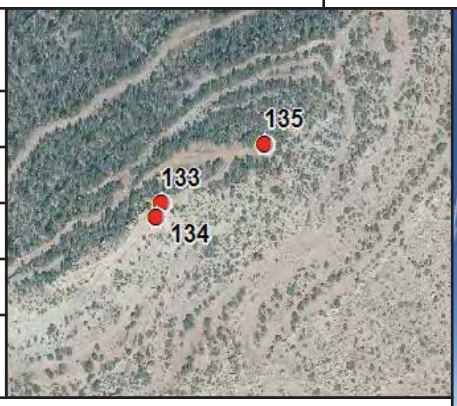
SITE 129: ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Monument Baptist Church		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:			**LATITUDE:**	39-4-31.89 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-37-32.01 W
ADDRESS:	486 23 Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:				
TYPE:	Concealed			
HEIGHT:				
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	3 Unknown			
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-172-00-954			
ZONING:	RSF-4			

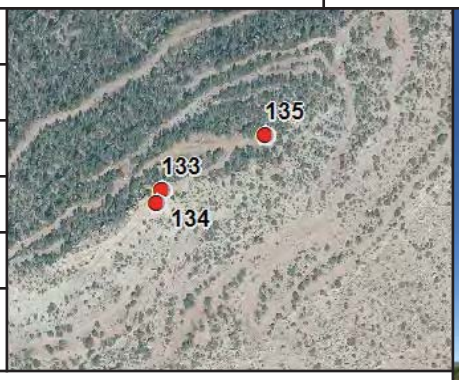
SITE 130: ELIGIBLE TOWER WITH NO PWSF				
PROPERTY OWNER:	Mesa County		**ZONING JURISDICTION:**	Collbran
FACILITY OWNER:	Grand Junction Regional Communications Center		**LATITUDE:**	39-14-9.77 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-107-58-43.90 W
ADDRESS:	15620 57 1/2 Road, Collbran		**PLACE:**	Collbran
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Emergency Services			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	2667-341-00-931			
ZONING:				

SITE 131: ELIGIBLE BASE STATION WITH PWSF				
PROPERTY OWNER:	City of Fruita		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:			**LATITUDE:**	39-7-19.188 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-43-58.235 W
ADDRESS:	1725 Broadway, Grand Junction		**PLACE:**	Fruita/Monument
SITE NAME:				
TYPE:	Water Tank Antenna			
HEIGHT:				
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	1: Unknown			
POTENTIAL COLLOCATIONS:				
PARCEL #:	2697-293-00-941			
ZONING:	AFT			

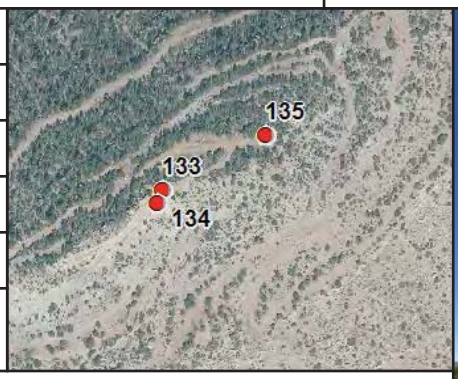
SITE 132: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	FAA		**LATITUDE:**	39-2-20.373 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-24-19.207 W
ADDRESS:	Wilson Boulevard, Palisade		**PLACE:**	East Orchard Mesa
SITE NAME:				
TYPE:	Self Support			
HEIGHT:				
ANTENNA TYPES:	FAA			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2941-293-00-914			
ZONING:	AFT			

SITES 133: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Grand Junction Regional Communications Center		**LATITUDE:**	38-38-45.75 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-109-0-27.41 W
ADDRESS:	5/10 Road, Gateway		**PLACE:**	Lee's Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:	40'			
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	3477-261-00-914			
ZONING:	AFT			

SITES 134: NON ELIGIBLE TOWER WITH PWSF				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	The Leasing Company, Inc		**LATITUDE:**	38-38-47.08 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:** COC64332	**LONGITUDE:**	-109-0-24.12 W
ADDRESS:	5/10 Road, Gateway		**PLACE:**	Lee's Point
SITE NAME:	Gateway Unaweep Fire District			
TYPE:	Guyed			
HEIGHT:	100'			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:	Comnet Wireless			
POTENTIAL COLLOCATIONS:				
PARCEL #:	3477-261-00-914			
ZONING:	AFT			

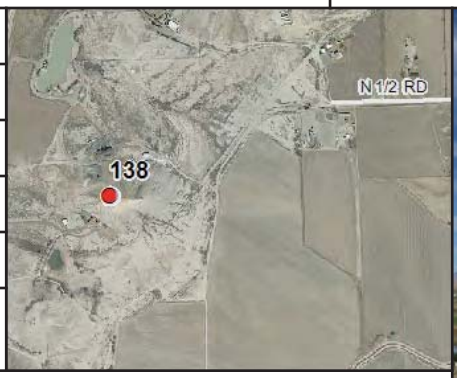
SITES 135: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Nucla Naturita Phone Company		**LATITUDE:**	38-38-45.42 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-109-0-27.60 W
ADDRESS:	5/10 Road, Gateway		**PLACE:**	Lee's Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	3477-261-00-914			
ZONING:	AFT			

SITES 136: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Helen E Kelley Trustee		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	The Leasing Company Inc		**LATITUDE:**	39-12-26.33 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-41-54.69 W
ADDRESS:	1909 N Road, Fruita		**PLACE:**	Lower Valley
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Wireless Internet			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	2695-342-00-595			
ZONING:	AFT			

SITES 135: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Bureau of Land Management		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Nucla Naturita Phone Company		**LATITUDE:**	38-38-45.42 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-109-0-27.60 W
ADDRESS:	5/10 Road		**PLACE:**	Lee's Point
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	3477-261-00-914			
ZONING:	AFT			

SITES 136: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Helen E Kelley Trustee		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	The Leasing Company Inc		**LATITUDE:**	39-12-26.33 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-41-54.69 W
ADDRESS:	1909 N Road		**PLACE:**	
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Wireless Internet			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	2695-342-00-595			
ZONING:	AFT			

SITES 137: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Jeffery and Cynthia Jones		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:			**LATITUDE:**	39-13-10.24 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-44-40.11 W
ADDRESS:	1619 O Road, Loma		**PLACE:**	Lower Valley
SITE NAME:				
TYPE:	Self Support			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	2695-301-00-432			
ZONING:	AFT			

SITES 138: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Joe and Teresa Massey		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Sky Beam		**LATITUDE:**	39-12-46.37 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-45-1.18 W
ADDRESS:	1464 16 Road, Loma		**PLACE:**	Lower Valley
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Wireless Internet			
SERVICE PROVIDER:	Sky Beam			
POTENTIAL COLLOCATIONS:				
PARCEL #:	2695-303-00-423			
ZONING:	AFT			

SITES 139: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Gene and Catherine Linn		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:	Fruita Wireless		**LATITUDE:**	39-11-59.38 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-45-35.35 W
ADDRESS:	1335 16 Road, Fruita		**PLACE:**	Lower Valley
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:	Wireless Internet			
SERVICE PROVIDER:	Fruita Wireless			
POTENTIAL COLLOCATIONS:				
PARCEL #:	2691-364-00-847			
ZONING:	AFT			

SITES 140: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Lee O Kelley Trustee		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:	The Leasing Company Inc		**LATITUDE:**	39-4-33.72 N
IDENTIFICATION:	**ASR:** 1046334	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-31-29.04 W
ADDRESS:	489 1/2 28 1/2 Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:	Mountain House of Prayer			
TYPE:	Guyed; Proposed Change to Lattice			
HEIGHT:	119'; Proposed increase to 200'			
ANTENNA TYPES:	PWSF			
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:				
PARCEL #:	2943-182-00-090			
ZONING:	C-1			

SITES 141: NON ELIGIBLE TOWER				
PROPERTY OWNER:	David and Mary Colby		**ZONING JURISDICTION:**	Grand Junction
FACILITY OWNER:			**LATITUDE:**	39-2-25.01 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-33-55.18 W
ADDRESS:	246 26 1/4 Road, Grand Junction		**PLACE:**	201 Boundary
SITE NAME:				
TYPE:	Lattice			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2945-263-00-032			
ZONING:	R-2			

SITES 142: NON ELIGIBLE TOWER				
PROPERTY OWNER:	Eagle Telecommunications Inc		**ZONING JURISDICTION:**	Mesa County
FACILITY OWNER:			**LATITUDE:**	39-9-59.95 N
IDENTIFICATION:	**ASR:**	**FACILITY OWNER ID:**	**LONGITUDE:**	-108-8-13.20 W
ADDRESS:	11086 Highway 65, Mesa		**PLACE:**	Mesa
SITE NAME:				
TYPE:	Self Support			
HEIGHT:				
ANTENNA TYPES:				
SERVICE PROVIDER:				
POTENTIAL COLLOCATIONS:	No			
PARCEL #:	2713-203-00-070			
ZONING:	Village of Mesa Overlay Zone			

Date: April 14, 2016
Author: David Thornton
Title/ Phone Ext: Principal Planner / x.1450

Proposed Schedule: Planning Commission April 26, 2016
File # (if applicable): CUP-2015-477

Attach 2

PLANNING COMMISSION AGENDA ITEM

Subject: TELECOMMUNICATION (WIRELESS) FACILITIES ZONING CODE AMENDMENTS - Amending the Zoning and Development Code sections governing development of telecommunications facilities. (ZCA-2016-112)
Action Requested/Recommendation: Forward a recommendation to City Council to amend the sections of the Zoning and Development Code governing development of telecommunications facilities.
Presenter(s) Name & Title: David Thornton, Principal Planner Shelly Dackonish, Staff Attorney

Executive Summary:

The proposed ordinance amends the City's regulations for telecommunications facilities, implementing the Wireless Master Plan (Plan) and bringing the regulations into compliance with Federal law.

Background, Analysis and Options:

In response to the growing dependence on cellular technology, the City hired a consultant, CityScape, to help it develop a Wireless Master Plan to help guide the development and construction of wireless infrastructure and optimize the use of existing and new telecommunications facilities. The purpose of the Plan is similar to the goals and objectives of other long-range infrastructure plans, such as roadway improvements and the extension of water and sewer lines. Combining land-use planning strategies with radio frequency engineering models, the Plan is designed to help direct the development of future telecommunications sites.

The Code amendments proposed here serve four primary purposes: (1) to implement the Wireless Master Plan; (2) to conform regulations governing telecommunications facility development to federal regulations, which significantly limit local land use authority with respect to wireless infrastructure; (3) to limit and/or manage unnecessary proliferation of unsightly towers by encouraging co-location of wireless facilities and (4) to establish standards for development which encourage safe and effective development of wireless facilities while minimizing their impacts on surrounding land uses.

How this item relates to the Comprehensive Plan Goals and Policies:

Goal 11: Public facilities and services for our citizens will be a priority in planning for growth.

> **Policy A:** The City and County will plan for locations…to serve the public health, safety and welfare, and to meet the needs of existing and future growth.

The proposed Code amendments encourage safe and efficient development of wireless infrastructure so that the increased demand for personal wireless services can be met without unnecessary proliferation of unsightly towers. They also incorporate Federal Communications Commission (FCC) regulations mandating timely review of applications and promoting competition and full network coverage. The design standards included in the proposed Code amendments will encourage co-location but allow for new facilities where needed to provide wireless services to the community.

How this item relates to the Economic Development Plan:

Section 1.4 of the Economic Development Plan focuses on providing technology infrastructure that enables and supports private investment. Expanding broadband capabilities and improving wireless and/or cell coverage to underserved areas are key objectives of the Economic Development Plan. The proposed Code amendments implement the Wireless Master Plan and encourage an efficient build-out of a full coverage and competitive wireless network for the community. The proposed Code amendments also include broadband-friendly regulations that (1) allow the City to, at its discretion and expense, install shadow conduit alongside other infrastructure installations, (2) require developers to install conduit for fiber in new development alongside other public infrastructure, and (3) allow the City to use fiber and conduit that has been abandoned within the City.

Board or Committee Recommendation:

The Planning Commission will make recommendation to the City Council on April 26, 2016.

Financial Impact/Budget:

There will not be a financial impact.

Legal issues:

The City's Senior Staff Attorney, Shelly Dackonish, has worked closely with the attorney for the wireless master plan consultant (Anthony Lepore with CityScape) to draft an ordinance that complies with federal statutes and regulations while protecting other land uses as much as possible and encouraging development of wireless infrastructure.

Public presentations have included information on the federal regulatory overlay. Ms. Dackonish will be available at the public hearings to address any questions the Planning Commission and/or the City Council has about the federal regulations. Mr. Lepore will also be present at the City Council hearing.

Other issues:

No other issues have been identified.

Previously presented or discussed:

- Joint Planning Commission Meeting - 10/14/2015
- City Planning Commission Workshop - 12/7/2015
- Stakeholder/Public Meeting - 12/7/2015
- WMP Survey - Community Preferences - Tower Types / Use of Public Property - 12/2015
- Council Workshop 1/18/2016 – Council agrees to consider use of public properties for wireless facility infrastructure
- Stakeholder/Public Comment Meeting - 4/5/2016
- Grand Junction Planning Commission Workshop – 4/21/2016
- Joint City/County Planning Commission Meeting - 4/26/2016
- City Council to consider adoption of WMP and related ordinance changes - 6/1/2016

STAFF RECOMMENDATION:

I recommend that the Planning Commission approve the requested Amendments to the Grand Junction Municipal Code, Title 21, Section 21.04.010(Use Table), Section 21.04.020(ee) and Section 21.04.030(q); (ZCA-2016-112)

RECOMMENDED PLANNING COMMISSION MOTION:

Madam Chairman, on the request to forward a recommendation to City Council to amend the Grand Junction Municipal Code, Title 21, Section 21.04.010(Use Table), Section 21.04.020(ee) and Section 21.04.030 (q); (ZCA-2016-112), I move that the Planning Commission approve it as presented in the Staff Report.

Attachments:

Proposed Ordinance

CITY OF GRAND JUNCTION, COLORADO

ORDINANCE NO. _____

AN ORDINANCE AMENDING THE CITY'S ZONING AND DEVELOPMENT REGULATIONS RELATING TO TELECOMMUNICATIONS FACILITIES

Recitals:

The City Council has adopted a Wireless Master Plan to provide long-term planning for an efficient and capable wireless telecommunication environment in the community, so that existing and new telecommunications infrastructure can be optimally utilized to meet the current and future wireless communication needs of the City's industry, businesses, residents and visitors while minimizing negative aesthetic impacts so as to preserve the character of the community and its natural surroundings. This Ordinance implements the Wireless Master Plan.

The City has also commissioned a broadband planning effort that is under way. This Ordinance furthers some of the goals of the broadband planning efforts by encouraging fiber deployment throughout the City in an economical and efficient manner.

The City Council finds that it is necessary and beneficial for the health, safety and welfare of the community to update the regulations for development of telecommunications facilities in the City in order to:

- promote the health, safety, and welfare of the public and minimize impacts of Facilities on surrounding land uses;
- establish standards for location, structural integrity, and compatibility;
- encourage the location and co-location of equipment on existing structures in order to reduce the need for new towers, thereby minimizing visual clutter, public safety impacts, and effects upon the natural environment and wildlife;
- accommodate the growing need and demand for telecommunications services while protecting the character of the City and its neighborhoods;
- encourage the availability of affordable, high-speed internet and cellular telephone access for businesses and residents, acknowledging that a growing number of businesses are conducted in whole or in part from homes and/or on-the-go, that increasingly education incorporates on-line learning necessitating good home internet connections for students and faculty, and that government participation and emergency services to the general public are enhanced by fast and reliable cellular and home internet connectivity;
- encourage coordination between suppliers and providers of telecommunications services to maximize use of existing Facilities and structures;
- establish predictable and balanced regulations within the authority reserved for local land use determination;
- respond to the mandates of the Telecommunications Act of 1996, the Middle Class Tax Relief and Job Creation Act of 2012, and other applicable federal and state laws limiting local discretion to regulate location of personal wireless service facilities (PWSF);
- ensure that applications are reviewed and acted upon promptly, without unreasonable discrimination between providers of functionally equivalent personal wireless services, and

so as not to prohibit or have the effect of prohibiting personal wireless services;

- encourage concealed technologies and the use of public lands, buildings, and structures as locations for Facilities;
- encourage affordable access to advanced technology and information, including but not limited to broadband facilities, which are critical to commerce, education, economic development, public safety and competitive participation in the global economy;
- acknowledge the importance of fiber-optic infrastructure for modern telecommunications and data access, including for personal wireless services, for backhaul, data security, speed and reliability of transmission, and longevity of telecommunications systems, and to encourage and promote the installation of fiber-optic cable and conduit to every premise in the City;
- recognize that the permitting, construction, modification, maintenance and operation of broadband facilities are declared to be matters of statewide concern and interest to the extent specifically addressed in *Colorado Statutes,* Chapter 29-27-Parts 1-4.

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNTIL OF THE CITY OF GRAND JUNCTION THAT:

Section 21.04.010 (Use Table) is amended as follows (deletions ~~struck through~~, additions <u>underlined</u>):

USE CATEGORY	PRINCIPAL USE	R-R	R-E	R-1	R-2	R-4	R-5	R-8	R-12	R-16	R-24	R-O	B-1	B-2	C-1	C-2	CSR	M-U	B-P	I-O	I-1	I-2	MX-	Std.
Telecommunications Facilities – devices and supporting elements necessary to produce nonionizing electromagnetic radiation operating to produce a signal	~~Telecommunications Facilities and Support Structures~~ Facilities on Wireless Master Plan Priority Site (when developed in accordance with Wireless Master Plan site-specific requirements)	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	~~C~~ A	A	21.04.030(q)& 21.04.020(ee)
	Temporary PWSF (e.g., COW)	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	21.04.030(q)
	Colocation	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	21.04.030(q)
	Tower Replacement	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
	Dual Purpose Facility	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	21.04.030(q)
	DAS and Small Cell Facilities	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	21.04.030(q)
	Base stations with concealed attached antennas	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A*	A	A	A	A	A*	A*	A	A	A	A*	21.04.030(q)
	Base stations with non-concealed	C*	C*	C*	C*	C*	C*	C*	C*	C*	C*	C*	C*	C	A	A	A	C*	A*	A	A	A	C*	21.04.030(q)

	attached antennas																							
	Tower, concealed	C	C**	C**	C**	C**	C**	C**	C	C	C	C	C	C	A	A	C	C	C	C	A	A		21.04.030(q)
	Tower, non-concealed														C	C	C				C	C		21.04.030(q)
	Broadcast tower																				C	C		21.04.030(q)

NOTES:

* Except NOT allowed on structures whose principle use is single- or two-family residential, group living, or day care, or on multifamily structures of fewer than 3 stories.

** Except NOT allowed on any site or lot where the principle use is single- or two-family residential.

Section 21.04.020(ee) is amended as follows (deletions ~~struck through~~, additions underlined):

(ee) **Telecommunications Facilities.**

(1) Characteristics. Telecommunications facilities include all devices, mechanical and/or electronic equipment ~~or~~, machinery, supporting structures or supporting elements, antenna(s), conduit, cable, enclosures, equipment compound(s), and/or assemblages necessary to ~~produce~~ generate or transmit non-ionizing electromagnetic radiation or light ~~within the range of frequencies from 100 KHz to 300 GHz and~~ operating ~~as a discrete unit~~ to produce a signal or message used for communication. Facilities may be self-supporting, guyed, or mounted on poles, other structures, light posts, power poles, or buildings, or may be installed underground. Facilities shall also include intertie and interconnection translators, access points, access vaults or cabinets, connections from over-the-air to cable, fiber optic, or other landline transmission system.

(2) Accessory Uses. Accessory use may include transmitter facility buildings.

(3) Examples. Examples include broadcast towers, communication towers, ~~and~~ point-to-point microwave towers, distributed antenna systems, small cell facilities, fiber-optic cables, and any other facility defined, referenced or described in Section 21.04.030(q).

(4) Exceptions. Exempt facilities are described in Section 21.04.030(q).

All other portions of Section 21.04.020 shall remain in full force and effect without change.

Section 21.04.030(q) is repealed in its entirety and replaced with the following:

(q) Telecommunications Facilities. This Section (q) establishes standards and requirements for the locating of Telecommunications Facilities.

(1) Definitions

Alternative Structure - A structure that is not primarily constructed for the purpose of holding antennas but on which one or more antennas may be mounted, such as buildings, water tanks, pole signs, billboards, church steeples, and electric power transmission towers.

Amateur Radio Tower - A tower used for non-commercial amateur radio transmissions consistent with the "Complete FCC U.S. Amateur Part 97 Rules and Regulations" for amateur radio towers.

Ancillary Structure - For the purposes of this Section, any form of development associated with a telecommunications facility, including foundations, concrete slabs on grade, guy anchors, generators, and transmission cable supports, but excluding equipment cabinets.

Antenna - Any apparatus designed for the transmitting and/or receiving of electromagnetic waves, including telephonic, radio or television communications. Types of elements include omni-directional (whip) antennas, sectionalized (panel) antennas, multi or single bay (FM & TV), yagi, or parabolic (dish) antennas.

Antenna Array - A single or group of antenna elements and associated mounting hardware, transmission

lines, or other appurtenances which share a common attachment device such as a mounting frame or mounting support structure for the sole purpose of transmitting or receiving electromagnetic waves.

Antenna Element - Any antenna or antenna array.

ASR - The Antenna Structure Registration Number as required by the FAA and FCC.

Base Station - Equipment and non-tower supporting structure at a fixed location that enable wireless telecommunications between user equipment and a communications network. Examples include transmission equipment mounted on a rooftop, water tank, silo or other above ground structure other than a tower. The term does not encompass a tower as defined herein or any equipment associated with a tower. "Base Station" includes, but is not limited to:

equipment associated with wireless telecommunications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul;

radio transceivers, antennas, coaxial or fiber optic cable, regular and back up power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks);

any structure other than a tower that, at the time the application is filed under this Section, supports or houses equipment described in this definition that has been reviewed and approved under the applicable zoning or siting process, or under another City regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.

"Base station" does not include any structure that, at the time the application is filed under this Section, does not support or house wireless communication equipment.

Breakpoint Technology - The engineering design of a monopole, or any applicable support structure, wherein a specified point on the monopole is designed to have stresses concentrated so that the point is at least five percent (5%) more susceptible to failure than any other point along the monopole so that in the event of a structural failure of the monopole, the failure will occur at the breakpoint rather than at the base plate, anchor bolts, or any other point on the monopole.

Broadband Facility - any infrastructure used to deliver broadband services or for the provision of broadband service.

Broadband Service - any technology identified by the US Secretary of Agriculture as having the capacity to transmit data to enable a subscriber to the service to originate and receive high-quality Internet access, voice, data, graphics, and video. Broadband service includes, but is not limited to:

Cable Service - the one-way transmission to subscribers of video programming or other programming services and subscriber interaction required for the selection or use of such video programming or other programming service.

Telecommunications Service - The offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.

Wireless Service - data and telecommunications services, including commercial mobile services, commercial mobile data services, unlicensed wireless service and common carrier wireless exchange access services, as all of these terms are defined by federal law and regulations.

Co-location - The mounting or installation of transmission equipment on an eligible support structure for the purposes of transmitting and/or receiving radio frequency signals for communications purposes so

that installation of a new support structure will not be required.

Combined Antenna – An antenna or an antenna array designed and utilized to provide services for more than one (1) wireless provider, or a single wireless provider utilizing more than one (1) frequency band or spectrum, for the same or similar type of services.

Concealed - A tower, ancillary structure, or equipment compound that is not readily identifiable as a telecommunications facility and that is designed to be aesthetically compatible with existing and proposed building(s) and uses on a site or in the neighborhood or area.

There are two types of concealed facilities: 1) Antenna Attachments, including painted antenna and feed lines to match the color of a building or structure, faux windows, dormers or other architectural features that blend with an existing or proposed building or structure and 2) A freestanding concealed tower which looks like something else that is common in the geographic region such as a church steeple, windmill, bell tower, clock tower, light standard, flagpole with a flag that is proportional in size to the height and girth of the tower, or tree that grows naturally or is commonly found in the area.

COW – "Cellular on Wheels" – A temporary PWSF placed on property to provide short term, high volume telecommunications services to a specific location and which can be easily removed from the property.

DAS – Distributed Antenna System – A system consisting of: (1) a number of remote communications nodes deployed throughout the desired coverage area, each including at least one antenna for transmission and reception; (2) a high capacity signal transport medium (typically fiber optic cable) connecting each node to a central communications hub site; and (3) radio transceivers located at the hub site (rather than at each individual node as is the case for small cells) to process or control the communications signals transmitted and received through the antennas.

DAS Hub - Ancillary equipment usually contained in a shelter or other enclosure which does not have any wireless transmission or receive equipment contained therein but is utilized in the deployment and operation of wireless DAS receive/transmit infrastructure that is located elsewhere.

Development Area - The area occupied by a telecommunications facility including areas inside or under an antenna-support structure's framework, equipment cabinets, ancillary structures, and/or access ways.

Dual Purpose Facility – A new banner pole, light stanchion, support tower for overhead electric lines, or other similar utility structure onto which one or more antenna(s) are or can be mounted or attached, and which is built for the primary purpose of providing PWSF.

Eligible Facilities Request - Any request for modification of an existing tower or base station involving co-location of new transmission equipment; removal of transmission equipment; or replacement of transmission equipment that does not Substantially Change the physical dimensions of such tower or base station.

Eligible Facility - Existing wireless tower or base station that has been approved through a local government land use review process prescribed for the tower or base station.

Eligible Support Structure - Any tower or base station existing at the time the application is filed with the City.

Existing - A constructed tower or base station is "existing" for purposes of this Section if it has been reviewed and approved under an applicable City land use review process. "Existing" also includes a tower that was lawfully constructed but not reviewed because it was not in a zoned area when it was built.

Equipment Compound- The fenced-in area surrounding, inside or under a ground-based wireless communication facility containing ancillary structures and equipment (such as cabinets, shelters, and

pedestals) necessary to operate an antenna that is above the base flood elevation.

Equipment Cabinet- Any structure used exclusively to contain equipment necessary for the transmission or reception of communication signals.

Equipment Shelter – A self-contained building housing ancillary electronic equipment typically including a generator.

Feed Lines- Cables or fiber optic lines used as the interconnecting media between the base station and the antenna.

Flush-Mounted- Antenna or antenna array attached to the face of a support structure or building such that no portion of the antenna(s) extend(s) above the height of the support structure or building. The maximum flush-mounting distance, if prescribed, shall be measured from the outside edge of the support structure or building to the inside edge of the antenna.

Geographic Search Ring- An area designated by a wireless provider or operator for a new base station and/or tower produced in accordance with generally accepted principles of wireless engineering.

Handoff Candidate - A wireless communication facility that receives call transference from another wireless facility, usually located in an adjacent first "tier" surrounding the initial wireless facility.

Least Visually Obtrusive Profile - The design of a telecommunication facility presenting the minimum visual profile necessary for proper function.

Non-concealed- A telecommunication facility that is readily identifiable as such (whether freestanding or attached).

OTARD – Over The Air Reception devices which are limited to either a "dish" antenna one meter (39.37 inches) or less in diameter designed to receive direct broadcast satellite service, including direct-to-home satellite service, or to receive or transmit fixed wireless signals via satellite, or an antenna that is one meter or less in diameter and is designed to receive video programming services via broadband radio service (wireless cable), or to receive or transmit fixed wireless signals other than via satellite or an antenna that is designed to receive local television broadcast signals.

Personal Wireless Service Facility ("PWSF")- Any staffed or unstaffed location for the transmission and/or reception of radio frequency signals or other personal wireless communications, including commercial mobile services, unlicensed wireless services, wireless broadband services, and common carrier wireless exchange access services as defined in the Telecommunications Act of 1996, and usually consisting of an antenna or group of antennas, transmission cables, feed lines, equipment cabinets or shelters, and may include a tower. Facilities may include new, replacement, or existing towers, replacement towers, co-location on existing towers, base station attached concealed and non-concealed antenna, dual purpose facilities, concealed towers, and non-concealed towers (monopoles, lattice and guyed), so long as those facilities are used in the provision of personal wireless services as that term is defined in the Telecommunications Act.

Qualified Co-location Request – co-location of PWSF on a tower or base station that creates a Substantial Change in the facility but is entitled to processing within 90 days under 47 U.S.C. §332(c)(7).

Radio Frequency Emissions- Any electromagnetic radiation or other communications signal emitted from an antenna or antenna-related equipment.

Radio Frequency Propagation Analysis- Computer modeling to show the level of signal saturation in a given geographical area.

Replacement- A modification of an existing tower to increase the height, or to improve its integrity, by replacing or removing one (1) or several tower(s) located in proximity to a proposed new tower in order to encourage compliance with this Section, or improve aesthetics or functionality of the overall wireless network.

Satellite Earth Station- A single or group of parabolic or dish antennas mounted to a support device that may be a pole or truss assembly attached to a foundation in the ground, or in some other configuration, including the associated separate equipment cabinets necessary for the transmission or reception of wireless communications signals with satellites.

Site - For towers other than towers in the public rights-of-way, the boundaries of the leased or owned property on which the Facilities are or are proposed to be situated.

Small Cell Facility - means a wireless service facility that meets both of the following qualifications:

1. Each antenna is located inside an enclosure of no more than three (3) cubic feet in volume or, in the case of an antenna that has exposed elements, the antenna and all of its exposed elements could fit within an enclosure of no more than three (3) cubic feet; and
2. Primary equipment enclosures are no larger than seventeen (17) cubic feet in volume. The following associated equipment may be located outside of the primary equipment enclosure and, if so located, is not included in the calculation of equipment volume: Electric meter, concealment, telecommunications demarcation box, ground-based enclosures, back-up power systems, grounding equipment, power transfer switch, and cut-off switch.

Small Cell Network - a collection of interrelated small cell facilities designed to deliver wireless service.

Stanchion - A vertical support structure generally utilized to support exterior lighting elements.

Streamlined Processing- Expedited review process for co-locations required by the federal government (Congress and/or the FCC) for PWSF.

Substantial Change - A modification or co-location constitutes a "substantial change" of an eligible support structure if it meets any of the following criteria:

1. A PWSF co-location or modification of an existing antenna-supporting structure not in a public right of way increases the overall height of the antenna-supporting structure, antenna and/or antenna array more than 10% or 20 feet, whichever is greater. A PWSF co-location on an existing antenna-supporting structure within a public right of way increases the overall height of the antenna-supporting structure, antenna and/or antenna array more than 10% or 10 feet, whichever is greater.
2. A PWSF co-location for towers not in a public right of way protrudes from the antenna-supporting structure more than 20 feet or the width of the structure at the elevation of the co-location, and for towers within a public right of way, protrudes from the antenna-supporting structure more than 6 feet.
3. A PWSF co-location on an existing antenna-supporting structure fails to meet current building code requirements (including windloading).
4. A PWSF co-location adds more than 4 additional equipment cabinets or 1 additional equipment shelter.
5. A PWSF co-location requires excavation outside of existing leased or owned parcel or existing easements.
6. A PWSF co-location defeats any existing concealment elements of the antenna-supporting structure.
7. A PWSF co-location fails to comply with all conditions associated with the prior approval of the antenna-supporting structure except for modification of parameters as permitted in this section.

Support Structure - Anything constructed or erected, the use of which requires permanent location on the ground, or attachment to something having a permanent location on the ground.

Telecommunications Facility(ies) – At a specific physical location, one or more antenna, tower, base

station, mechanical and/or electronic equipment, conduit, cable, and associated structures, enclosures, assemblages, devices and supporting elements that generate or transmit nonionizing electromagnetic radiation or light operating to produce a signal used for communication, including but not limited to all types of communication facilities defined further herein.

Temporary PWSF – A temporary tower or other structure that provides interim short-term telecommunications needed to meet an immediate demand for service in the event of an emergency or a public event where a permanent wireless network is unavailable or insufficient to satisfy the temporary increase in demand or when permanent PWSF equipment is temporarily unavailable or offline. .

Transmission Equipment- Equipment that facilitates transmission of communication service (whether commercial, private, broadcast, microwave, public, public safety, licensed or unlicensed, fixed or wireless), such as radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply.

Tower- Any support structure built for the primary purpose of supporting any antennas and associated facilities for commercial, private, broadcast, microwave, public, public safety, licensed or unlicensed, and/or fixed or wireless services. A tower may be concealed or non-concealed. Non-concealed towers include:

Guyed - A style of tower consisting of a single truss assembly composed of sections with bracing incorporated. The sections are attached to each other, and the assembly is attached to a foundation and supported by a series of wires that are connected to anchors placed in the ground or on a building.

Lattice - A self supporting tapered style of tower that consists of vertical and horizontal supports with multiple legs and cross bracing, and metal crossed strips or bars to support antennas.

Monopole - A style of freestanding tower consisting of a single shaft usually composed of two (2) or more hollow sections that are in turn attached to a foundation. This type of tower is designed to support itself without the use of guy wires or other stabilization devices. These facilities are mounted to a foundation that rests on or in the ground or on a building's roof. All feed lines shall be installed within the shaft of the structure.

Tower Base- The foundation, usually concrete, on which the tower and other support equipment are situated. For measurement calculations, the tower base is that point on the foundation reached by dropping a perpendicular from the geometric center of the tower.

Tower Height- The vertical distance measured from the grade line to the highest point of the tower, including any antenna, lighting or other equipment affixed thereto.

Tower Site- The land area that contains, or will contain, a proposed tower, equipment compound, support structures and other related buildings and improvements.

Wireless Service Facility – a telecommunications facility for the provision of wireless services.

(2) Permit required; exemptions; permit types; general requirements; decision-making; fees.

(i) No telecommunications facility shall be installed, constructed, altered, added to, or permitted unless the Director has first approved a site plan review for the property and the facilities and a permit has been issued. Telecommunications facilities and infrastructure shall be constructed and maintained in conformance with all applicable building code requirements as well as with the terms of the Permit issued under this Section.

(ii) No telecommunications facility shall be altered, added to, installed or permitted unless the applicant has shown compliance with all the requirements of this Section. The requirements of Section apply to all telecommunications facilities, whether concealed or not, whether above-ground or underground,

including but not limited to existing towers, proposed towers, public towers, replacement of towers, ancillary structures and equipment, co-location on existing towers, base stations, temporary telecommunications facilities, PWSF facilities, DAS facilities, small cell sites and/or networks, and broadcast towers, except that the following are exempt and no permit is required:

(A) An Amateur Radio Tower that is used exclusively for non-commercial purposes;

(B) A government-owned telecommunications facility erected for a state of emergency officially declared by a federal, state or local government and where the City Manager or designee has made a written determination of public necessity for the facility, and only during the duration of the state of emergency;

(C) A government-owned public safety facility;

(D) Over-the-air reception devices (OTARD), including satellite earth stations, so long as the device does not require construction of a tower or other structure exceeding 12 feet above the home or building and the device is no more than one meter in diameter in a residential zone or two meters in any other zone district.

(iii) General Requirements Applicable To All Telecommunications Facilities

(A) Signage. Commercial messages shall not be displayed on any tower, support structure or ancillary structure, unless the tower is concealed and the means of concealment is or includes an existing sign or unless a sign is serving as a dual purpose facility or a base station. Required noncommercial signage shall be subject to the following:

a. The only signage that is permitted upon a concealed tower, equipment cabinets, shelters or fence shall be informational, and for the purpose of identifying the tower (such as ASR registration number), as well as the party responsible for the operation and maintenance of the facility, and any additional security and/or safety signs as applicable.

b. If more than 220 voltage is necessary for the operation of the facility and is present in a ground grid or in the tower, signs located every twenty (20) feet and attached to the fence or wall shall display in large, bold, high contrast letters, minimum height of each letter four (4) inches, the following: "HIGH VOLTAGE - DANGER."

c. Name plate signage shall be provided, in an easily visible location, including the address and telephone number of the contact to reach in the event of an emergency or equipment malfunction, including property manager signs as applicable.

(B) Lighting. Lighting on PWSF towers shall not exceed the Federal Aviation Administration (FAA) minimum standards. All other lighting shall be subject to the following:

a. Any lighting required by the FAA must be of the minimum intensity and number of flashes per minute (i.e., the longest duration between flashes) allowable by the FAA. Dual lighting standards are required with strobe during daytime and red flashing lights at night unless prohibited by the FAA.

b. Lights shall be filtered or oriented so as not to project directly onto surrounding property or rights-of-way, consistent with FAA requirements.

(iv) Telecommunication Facilities shall be located in accordance with the Use Table in Section 21.04.010. One or more of several types of permits may be required for a given facility or group of facilities.

(A) Administrative permit. For those types of facilities that are allowed in the given zone

district, and for qualified co-locations, an administrative permit (a permit issued by the Director) is required. The permit shall be processed and decided in accordance with Section 21.02.070 and this Section 21.04.030(q).

(B) Conditional use permit (CUP). For those types of facilities that require a conditional use permit (see Section 21.04.010 Use Table), the Director shall review the application and make a recommendation to the Planning Commission who shall hold a hearing on the application and who may approve, approve with conditions, or deny the application in accordance with Section 21.02.110 and with this Section 21.04.030(q).

(C) Right-of-way work/use permit. Facilities / structures located in the public right-of-way shall be placed so as not to interfere with vehicular or pedestrian use of the rights-of-way or with traffic safety. Any/all work in the public right-of-way requires a separate permit pursuant to the City's right-of-way management ordinance. The provider shall comply with all the provisions and terms of the right-of-way management ordinance and right-of-way work permit. As-built construction drawings shall be provided to the City for all structures, equipment, cable, pipes and conduit located within the public right-of-way or within a public or City-owned utility or multi-purpose easement, which must include, for fiber optic cable, the number of strands of fiber in the conduit.

(D) Consolidated application/permit. For the following facility types, the applicant shall be allowed, at the applicant's discretion, to file a single, consolidated application for multiple facilities and receive a single review/permit/decision instead of filing separate applications for each facility (however, right-of-way work permit(s) may also be required):

a. For small cell networks involving multiple individual small cell facilities within the City;

b. For an applicant desiring to co-locate on several wireless service facilities within the City.

(E) Shadow conduit. For all telecommunications facility development/installation that involves trenching or excavation in the public right-of-way or in a public or City-owned utility or multipurpose easement, the applicant shall notify the City 30 days prior to commencing such excavation and provide the City the opportunity to install conduit in the same trench / excavation area. The City will pay for the incremental costs of the shadow conduit only.

(iv) Siting of Telecommunications Facilities.

(A) Compliance with Siting Preferences. For every application for siting of new Telecommunications Facilities on or above ground level (except temporary PWSF and co-locations), the applicant must submit an affidavit by a radio frequency engineer demonstrating compliance with the Siting Preferences of subsection (5) below. Where a lower ranking alternative is proposed, the affidavit must address why each of the higher ranked options are not technically feasible, practical, and/or justified.

(B) Where the application is for siting of PWSF, whether for a new facility, modification of existing facility, replacement facility or co-location, and whether the permit is administrative or a CUP, the following additional decision-making requirements apply:

a. If the application is denied, the decision maker shall issue the decision in writing, including the bases for the denial, which must be supported by substantial evidence contained in a written record. The written bases for the decision must be issued contemporaneously with the decision.

b. The application cannot be denied, nor can conditions be applied or required, based upon considerations of radio frequency (RF) emissions safety, other than to require the applicant to demonstrate that all applicable FCC rules are satisfied.

(v) Streamlined processing for co-location of PWSF.

(A) If the applicant believes its co-location application is an Eligible Facilities Request or a

Qualified Co-location Request, the applicant must submit:

a. A complete co-location application specifically requesting streamlined processing and stating the applicable permitting time-frame (e.g., 60 days for Eligible Facilities Request or 90 days for Qualified Co-Location Request);

b. Documentation evidencing that any structure proposed to be replaced or modified has previously been subject to zoning / development approval by the City;

c. Documentation evidencing the replacement/modification does not create a Substantial Change in the underlying support structure or tower, or a statement that it does create a Substantial Change;

d. Documentation that the proposed modifications will be used to provide personal wireless services.

(B) The Director shall review and decide applications for co-location of PWSF.

(C) The Director will notify the applicant within thirty (30) days of submission (or within some other mutually agreed upon timeframe) if the submission is incomplete, identifying the specific deficiencies in the application which, if cured, would make the application complete.

(D) Upon notice of deficiency, the timeline for a decision shall be tolled until the applicant re-submits to correct such deficiency. The City shall, within ten (10) days of re-submission, notify the applicant of continuing deficiencies or the application will be deemed complete. The timeline for a decision shall be likewise tolled during the additional re-submission deficiency period until the 2nd resubmission. Upon resubmitting of the revised application the City shall follow the process identified in this section, above, until all deficiencies identified are deemed cured.

(E) If the Director fails to provide such notification, the application will be deemed complete.

(F) The Director's decision shall be in writing and shall be postmarked to the applicant within 60 days after the initial submission, excluding any tolling period, for an Eligible Facilities Request, or, for a Qualified Co-location, within 90 days after the initial submission, excluding any tolling period, or within some other mutually agreed upon timeframe.

(G) If the City does not respond in writing to an Eligible Facilities Request within the specified timeframe, the application shall be deemed approved. If the City does not respond in writing to a request for a Qualified Co-location within the specified timeframe, the applicant may pursue its remedies established by federal or state law.

(vi) Timing for Review of New PWSF Tower Applications.

A new PWSF tower, whether concealed or non-concealed, shall be reviewed and a decision rendered within one hundred and fifty (150) days of receipt of the application, subject to any applicable tolling for application deficiencies and resubmissions as described in subsection (v) above, so long as the applicant demonstrates that the facilities will be used, immediately upon completion of construction, to provide personal wireless services, or within such other mutually agreed upon time. ("Spec" towers are not entitled to review and decision within 150 days, or to any of the other protections of the Telecommunications Act.) Construction permits issued for new PWSF towers shall be valid for a term of eighteen (18) months and shall lapse and be void if construction of the contemplated PWSF structure is not completed within that time.

(vii) Application and Fees.

(A) Application materials required for Telecommunications Facilities shall be in accordance with this Section and with the specific application requirements in the City's Submittal Standards for Improvements and Development (SSID) Manual. The application form and requirements are specific to the type of Telecommunications Facility.

(B) The City Council shall establish fees to cover or offset the processing cost of all permits under this Section which will be included in the development fee schedule. Every application for a Telecommunications Facility shall be accompanied by the full payment of the fee established for the type of facility requested. Payment of fees is required in order for an application to be considered complete. The fee shall not be, in whole or in part, deferred or waived.

(C) The City reserves the right to require, in its sole discretion, a supplemental review by experts for any application for a telecommunication facility where the complexity of the analysis requires technical expertise, and/or for any request to vary a standard under subsection (14) of this Section, and all the costs of such review shall be borne by the applicant, in addition to scheduled fees.

(D) Based on the results of the supplemental review, City staff responsible for the initial application review may require changes to or supplementation of the applicant's submittal(s).

(E) The supplemental review may address any or all of the following:

a. The accuracy and completeness of the application and any accompanying documentation.

b. The applicability of analysis techniques and methodologies.

c. The validity of conclusions reached.

d. Whether the proposed telecommunications facility complies with the applicable approval criteria and standards of the Zoning and Development Code and other applicable law.

(3) Abandonment / discontinued use.

(i) All Telecommunication Facility structures, equipment, fencing and devices shall be removed from the property and the site returned to its natural state and topography and vegetated consistent with the natural surroundings or current surrounding land uses at the property owner's and/or service provider's expense within 180 days of cessation of use, or within 90 days of cessation of use if the abandonment is associated with a replacement.

(ii) The City may extend the time for removal and site restoration up to 60 additional days if the owner or service provider so requests and shows good and unique cause for the extension.

(iii) If removal and/or site restoration is not accomplished within the prescribed time, the City may initiate removal and restoration within 30 days following written notice to the property owner, and the property owner and service provider shall be jointly and severally responsible for all costs associated with the removal and restoration.

(iv) Conduit and/or fiber optic cable, whether below or above ground, that is or has been abandoned or the use of which is discontinued for one year shall become the property of the City of Grand Junction. Easements for the maintenance of such conduit/cable shall also become the property of the City of Grand Junction, which shall have all the benefit and interest of the original easement holder with respect to installation, maintenance and repair of conduit/cable.

(4) No interference with public safety communications.

(i) Applicant shall, regardless of the type of facility, comply with "Good Engineering Practices" as defined by FCC regulations and shall provide a composite analysis of all users of the site to determine that the proposed facilities will not cause radio frequency interference with any governmental public safety communications and shall implement appropriate technical measures to prevent such interference.

(ii) When the City notifies a wireless service provider that it believes the provider's antenna(s) or

array(s) are creating such interference, the provider shall investigate and mitigate the interference, if any, utilizing the procedures set forth in the joint wireless industry-public safety "Enhanced Best Practices Guide," released by the FCC in Appendix D of FCC 04-168 (released August 6, 2004), including the "Good Engineering Practices," as may be amended or revised by the FCC from time to time in any successor regulations.

(iii) If the provider fails to comply with this subsection (4), including but not limited to by initiating an appropriate response within 24 hours of the City's notification, the provider and the property owner shall be jointly and severally responsible for reimbursing the City for all costs associated with ascertaining and resolving the interference.

(5) Siting Preferences for New Telecommunications Facilities.

Siting of new PWSF of any type shall be in accordance with the Siting Preferences below and with the Use Table in Section 21.04.030. Where a lower ranked alternative is proposed, the applicant must demonstrate through relevant information including, but not limited to, an affidavit by a radio frequency engineer demonstrating that despite diligent efforts to adhere to the established hierarchy within the geographic search area, higher ranked options are not technically feasible, practical or justified given the location of the proposed facilities, by clear and convincing evidence. The applicant must provide such evidence in its application in order for the application to be considered complete.

The Siting Preferences are, in order:

(i) Co-located or combined PWSF

(ii) Concealed antenna(s) on a base station

(iii) Non-concealed antenna(s) on a base station

(A) On a Wireless Master Plan Priority Site

(B) On City-owned property in any non-residential zoning district

(C) On other public property in any non-residential zoning district

(D) On non-public property in the following zoning districts, ranked highest to lowest:

a. I-2, I-1 or I-O

b. C-2

c. B-P or C-1

d. CSR

e. Other zone districts in accordance with the Use Table in Section 21.04.010.

(iv) Replacement of existing Telecommunications Facility in any zoning district

(v) Dual Purpose Facility

(vi) Concealed small cell site

(vii) Non-concealed small cell site

(viii) Distributed Antenna System

(A) Attached

a. Concealed on City-owned property, right-of-way or public easement

b. Concealed on other public property

c. Concealed on non-public property

d. Non-concealed on City-owned property, right-of-way or public easement

e. Non-concealed on other public property

f. Non-concealed on non-public property

(B) New Freestanding DAS facility

a. Concealed on City-owned property, right-of-way or public easement

b. Concealed on other public property

c. Concealed on non-public property

d. Non-concealed on City-owned property, right-of-way or public easement

e. Non-concealed on other public property

f. Non-concealed on non-public property

(ix) Concealed freestanding towers

(A) On a Wireless Master Plan Priority Site

(B) On City-owned property in any non-residential zoning district

(C) On other public property in any non-residential zoning district

(D) On non-public property in the following districts, ranked highest to lowest:

a. I-2 or I-1

b. C-2

c. C-1

d. Other zone districts, in accordance with the Use Table in Section 21.04.010.

(E) Preferred concealment type (wherever located). Concealment types listed below are general preferences, in no particular order. The appropriate means of concealment will depend upon the structures and developed features already existing in the area. Innovative concealment is encouraged so long as it is visually integrated into the immediate surroundings.

a. Tree of a type naturally occurring or normally found in the geographic area

b. Church steeple

c. Bell or clock tower

d. Belfries, domes or chimneys

e. Elevator towers

f. Flag poles

g. Water towers

h. Cupolas

i. Other architectural or art feature

Examples of concealed facilities:

(x) Non-concealed towers

(A) On a Wireless Master Plan Priority Site

(B) On City owned property in any non-residential zoning district

(C) On other public property in any non-residential zoning district

(D) On non-public property in the following districts, ranked highest to lowest:

a. I-2;

b. I-1
c. C-2;
d. C-1.

(E) Preferred tower type (wherever located)
a. Monopole
b. Lattice
c. Guyed

Broadcast towers are not subject to the siting preferences; they may be sited in accordance with the Use Table (Section 21.04.010). Broadcast towers shall not be located on a Wireless Master Plan Priority Site; those are reserved and planned for PWSF and public safety telecommunications facilities.

(6) Temporary PWSF Specifications and Requirements

Development Standards. Temporary PWSF shall be permitted by the Director in those zone districts specified in the Use Table in Section 21.04.010 where all of the following are met:

(i) It will be in place for no more than 60 days (subject to a one time extension of an additional 60 days for good cause);

(ii) Notification of construction is provided by the applicant to the FAA;

(iii) It does not require marking or lighting by the FAA;

(iv) It will be less than 200 feet in height;

(v) It does not involve any excavation (or excavation where prior disturbance exceeds proposed excavation by at least 2 feet).

(7) Telecommunication Facility Co-location and Combination

Development Standards. The City requires co-location and combining of Telecommunications Facilities on existing towers, existing Base Stations or existing alternative support structures (Dual Purpose Facilities) as a highest priority where such co-location is possible. A permit shall be required for co-location of facilities on an existing tower, existing Base Station or Dual Purpose Facility. Co-location or combination of Telecommunications Facilities requires an administrative permit, and is subject to the following:

(i) A co-located or combined antenna or antenna array shall not exceed the maximum height prescribed in the applicable land use permit or increase the height of an existing tower by more than 20 feet and shall not affect any tower lighting, except as provided for herein below. A PWSF co-location that does not create a Substantial Change in the tower or support structure shall be approved within 60 days (subject to tolling) in accordance with Section 21.04.030(q)(2)(v).

(ii) If the applicant who seeks to co-locate PWSF demonstrates a coverage gap that cannot be addressed by a co-location that meets (A) above, the applicant may request a variance of the height limitation in accordance with 21.04.030(q)(14). If the co-location is a qualified co-location under 47 U.S.C. §332(c)(7), the Director shall render a decision within 90 days, subject to tolling, in accordance with 21.04.030(q)(2)(v).

(iii) New antenna mounts shall be flush-mounted onto existing structures where flush mounting was a condition of the original approval, unless it is demonstrated through radio frequency (RF) propagation analysis that flush-mounted antennas will not meet the network objectives of the desired coverage area, or unless applicant demonstrates that flush-mounting would interfere with existing antenna mounting or coax arrangements that were previously approved.

(iv) The equipment cabinet shall be subject to the setback requirements of the underlying zoning district.

(v) When a co-located or combined antenna is to be located on a nonconforming building or structure, then the existing permitted nonconforming setback shall prevail.

(vi) No signage shall be permitted on an antenna or antenna array that is combined with or co-located on an alternative support structure; however, the support structure may itself be an existing sign, so long as the sign was approved through a non-Telecommunications Facility development permit or sign permit.

(8) New Base Stations: Concealed and Non-concealed

(i) Antennas and equipment may be mounted onto a structure which is not primarily constructed for telecommunications purposes in accordance with the Use Table of Section 21.04.010. A permit is required for base station antennas and equipment mounted onto such an alternative structure. In residential districts, the following structures shall not be used as base stations or to support PWSF or commercial antenna(s): single-family dwelling, two-family dwelling, multi-family dwelling of fewer than three stories in height, group living facility, or day care.

(ii) Development Standards. Antenna(s) and equipment to be located on an alternative structure shall be subject to the following:

(A) If the facility is concealed, the top of antenna(s) shall not be more than 35 feet above the existing or proposed building or structure, except that antenna(s) located on the perimeter of the supporting structure shall not be more than ten feet above the supporting structure;

(B) If the facility is non-concealed, the top of the antenna shall not be more than 20 feet above the existing or proposed building or structure and shall not be located on the perimeter of the supporting structure;

(C) New antenna mounts shall be flush-mounted onto existing structures, unless it is demonstrated through radio frequency (RF) propagation analysis that flush-mounted antennas will not meet the network objectives of the desired coverage area;

(D) New antenna mounts shall meet the setbacks and height restrictions of the underlying zone district;

(E) When attached base station antenna(s) and equipment is/are to be located on a nonconforming building or structure, the existing permitted nonconforming setback or height shall prevail;

(F) Concealed base station attached antennas, feed lines and antennas shall be designed to architecturally match the façade, roof, wall, and/or structure on which they are affixed so that they blend with the existing structural design, color, and texture; and

(G) No signage shall be allowed on an antenna or antenna array that is located on an alternative structure; however, the alternative structure itself may have a sign that was otherwise approved as part of a non-Telecommunications Facility development application or sign permit.

(9) Antenna Element Replacement or Modification

Development Standards. A permit is required for any replacement or modification of existing antenna(s) and associated equipment, and the replacement or modification must comply with the following:

(i) Height. The increase in height of a PWSF that is modified shall not create a "Substantial Change" in the PWSF.

(ii) Equipment cabinets and Equipment Shelters. Electronic equipment shall be contained in either (a) equipment cabinets or (b) equipment shelters. Equipment cabinets shall not be visible from pedestrian and right-of-way views. Equipment cabinets may be provided within the principal building on the lot, behind a screen on a rooftop, or on the ground within the fenced-in and screened equipment compound.

(iii) Sounds. No unusual sound emissions such as alarms, bells, buzzers, or the like are permitted. Emergency generators are allowed. Sound levels shall not exceed 65 db as measured at the property boundaries for the facility.

(10) Tower / Support Structure Replacement

(i) A permit is required for replacement of a tower and support structure. Applicant must demonstrate by clear and convincing competent evidence that replacement will accomplish at least one of the following:

(A) Reduction in the number of Telecommunications Facility support structures or towers;

(B) Replacement of a non-concealed tower with a concealed tower

(C) Significant reduction of the visual impact of a Telecommunications Facility;

(D) Replacement of an existing tower with a new tower so as to improve network functionality resulting in compliance with this Section; and/or

(E) Replacement of an existing support structure to increase the number of Personal Wireless Service Providers located on such structure.

(ii) Development Standards.

(A) Setbacks: A new tower approved for replacement shall not be required to meet new setback standards so long as the new tower and its equipment compound are no closer to any property lines or dwelling units as the tower and equipment compound being replaced. The intent is to encourage the replacement process, not penalize the tower owner for the change out of the old facility. (For example, if a new tower is replacing an old tower, the new tower is permitted to have the same setbacks as the tower being removed, even if the old tower had nonconforming setbacks.)

(B) Height: The height of the replacement tower or support structure shall not create a Substantial Change of the facility being replaced.

(C) Breakpoint technology: A replacement monopole tower shall use breakpoint technology in the design of the replacement facility.

(D) Visibility: Replacement towers or support structures shall be configured and located in a manner that minimizes adverse effects on the landscape and adjacent properties, with specific design considerations as to height, scale, color, texture, and architectural design of the buildings on the same and adjacent zoned lots.

(E) All replacement towers shall be constructed and maintained to meet ANSI/EIA/TIA-G (as amended) Series III, Exposure C structural standards.

(11) DAS & Concealed Small Cell Facilities

(i) Attached DAS Development Standards.

(A) Where feasible, antennas can be placed directly above, below or incorporated with vertical design elements of a building or structure to maximize concealment. The top of the antenna(s) shall not exceed more than 7 feet above the tallest level of the structure on which it is attaching.

(B) Attached Equipment box and power meter is discouraged; however, if attachment is justified, equipment box and meter shall be located on the pole at a height that does not interfere with pedestrian or vehicular traffic or visibility and where applicable shall not interfere with street name signs or traffic lighting standards.

(C) Freestanding equipment box and/or power meter not attached to an existing structure shall be located no farther than 2' from the base of the structure and shall not interfere with pedestrian or

vehicular traffic. Screening materials may be required if the equipment box and/or meter are adjacent to a public right-of-way or along a pedestrian sidewalk or pathway.

(D) All cables shall be installed internally; but where internal mounting is not possible, surface mounted wires shall be enclosed within conduit or a similar cable cover which should be painted to match the structure or building on which that DAS is mounted.

(ii) New Freestanding DAS Facility & Concealed Small Cell Facility Development Standards.

(A) Height. The total height of DAS facility/Small Cell Facility including antenna shall not exceed one foot above the height of existing public utility poles for power or light in the same geographic area.

(B) Setbacks for DAS/Small Cell outside of the right-of-way shall meet the same setbacks of the underlying zoning district for similar structures.

(C) The use of foliage and vegetation around ground equipment may be required by the City based on conditions of the specific area where the ground equipment is to be located. In order to avoid the clustering of multiple items of ground equipment in a single area, a maximum of two ground equipment boxes may be grouped together in any single location. In addition, such locations must be spaced a minimum of 500 linear feet of right-of-way apart from each other. Individual ground equipment boxes shall not exceed three feet wide by three feet deep by five feet high in size. The size and height of new freestanding DAS and concealed small cell facility poles shall be no greater than the size and height of any other telecommunications facility poles located in the same or similar type of rights-of-way in the City.

(D) Visibility of new DAS/Small Cell poles

a. New DAS/Small Cell structures shall be configured and located in a manner that minimizes adverse effects on the landscape and adjacent properties, with specific design considerations as to height, scale, color, texture, and architectural design of the buildings on the same and adjacent zoned lots. Concealment design is required to minimize the visual impact of wireless communications facilities.

b. All cables, conduits, electronics and wires shall be enclosed within the structure.

c. Small Cell facilities shall be no larger in size than what is specified in the Definitions (Section 21.04.030(q)(1)).

d. New DAS/Small Cell structures shall be located in arterial rights-of-way whenever possible. Placement of new DAS/Small Cell structures in rights-of-way other than arterials shall be justified by an engineering analysis from the applicant to the satisfaction of the city engineer prior to the issuance of any permit. Whenever new DAS/Small Cell structures must be placed in a right-of-way with residential uses on one or both sides of the street, no pole, equipment, antenna or other structure may be placed directly in front of a residential structure. If a right-of-way has residential structures on only one side of the street, the new DAS/Small Cell structure shall be located on the opposite side of the right-of-way whenever possible. All new DAS/Small Cell structures shall be located such that views from residential structures are not significantly impaired. Newly installed poles for new DAS/Small Cell structures should be located in areas with existing foliage or other aesthetic features in order to obscure the view of the pole.

e. New DAS/Small Cell structures located in rights-of-way shall be constructed and maintained so as not to interfere with, displace, damage, inhibit or destroy any other utilities or facilities, including but not limited to sewer, gas or water mains or service lines, storm drains, pipes, cables or conduits, or any other facilities lawfully occupying the right-of-way, whether public or private. All wireless communications facilities shall be placed and maintained so as not to create interference with the operations of public safety telecommunications service. The City reserves the right to place and maintain, and

permit to be placed or maintained, sewer, gas, water, electric, storm drainage, communications, and other utilities and facilties, cables or conduit, and to do, and to permit to be done, any underground and overhead installation or improvement that may be deemed necessary or proper by the City in public rights-of-way occupied by the new DAS/Small Cell structure.

(E) Equipment cabinets. Equipment shelters or cabinets shall be consistent with the general character of the neighborhood and historic character if applicable. Equipment shelters or cabinets shall be screened from the public view by using landscaping, or materials and colors consistent with the surrounding backdrop.

a. Screening enclosures shall be allowed when the design is architecturally compatible with the building

b. Screening materials shall consist of materials and colors consistent with the surrounding backdrop and/or textured to match the existing structure.

c. The use of foliage and vegetation around ground equipment may be required based on conditions of the specific area where the ground equipment is to be located.

d. Small Cell equipment cabinets shall comply with the size requirements set forth in the Definitions above.

(iii) DAS Hub Development Standards.

(A) Setbacks for DAS hubs outside of the right-of-way shall meet the setback standards of the underlying zoning district.

(B) DAS hub. Equipment shelters or cabinets shall be consistent with the general character of the neighborhood and historic character if applicable. Equipment shelters or cabinets shall be screened from the public view by using landscaping, or materials and colors consistent with the surrounding backdrop.

a. Screening enclosures shall be allowed when the design is architecturally compatible with the building

b. Screening materials shall consist of materials and colors consistent with the surrounding backdrop and/or textured to match the existing structure.

c. The use of foliage and vegetation around ground equipment may be required based on conditions of the specific area where the ground equipment is to be located.

(12) Concealed and Non-concealed Telecommunications Towers (Not including DAS or Broadcast Tower, which are addressed in other subsections)

(i) A pre-application conference is required for a new telecommunications tower. A permit and a major site plan review shall be required for a new telecommunication tower. The permit required may be an administrative permit or a CUP, depending upon the zone district (See Section 21.04.010 Use Table) and/or whether or not the site is a Priority Site on the Wireless Master Plan.

(ii) No new tower shall be permitted unless the applicant demonstrates that no existing tower or qualified alternative support structure can accommodate the applicant's proposed use, or that co-location on such existing facilities would have the effect of prohibiting personal wireless services in the geographic search area to be served by the proposed tower.

(iii) Development Standards.

(A) Height.

a. New concealed towers shall be limited to 200 feet in height. Height calculations shall be made in accordance with FAA standards, and shall include all appurtenances.

b. New non-concealed (non broadcast) towers shall be limited to 150 feet in height. An applicant desiring a new non-concealed tower taller than 150 feet must request a variance in accordance with Section 21.04.030(q)(14). However, under no circumstance shall any non-concealed tower exceed 199 feet.

(B) Setbacks and spacing from residential structures. A new tower shall be subject to the principle structure setbacks of the underlying zone district, and, with respect to any residential structure on adjacent property:

a. If the tower has been constructed using breakpoint design technology (see 'Definitions'), the minimum distance from any residential structure shall be equal to 110 percent (110%) of the distance from the top of the structure to the breakpoint level of the structure, or the minimum principle structure setbacks, whichever is greater. Certification by a registered professional engineer licensed by the State of Colorado of the breakpoint design and the design's fall radius must be provided together with the other information required herein from an applicant. (For example, on a 100-foot tall monopole with a breakpoint at eighty (80) feet, the minimum distance from the residential structure would be twenty-two (22) feet (110 percent of twenty (20) feet, the distance from the top of the monopole to the breakpoint) plus the minimum principle structure setback requirements for that zoning district.)

b. If the tower is not constructed using breakpoint design technology, the minimum distance from any residential structure shall be equal to the height of the proposed tower.

(C) Equipment cabinets and Equipment Shelters. Electronic equipment shall be contained in either (a) equipment cabinets or (b) equipment shelters. Equipment cabinets shall not be visible from pedestrian and right-of-way views. Equipment cabinets may be provided within the principal building on the lot, behind a screen on a rooftop, or on the ground within the fenced-in and screened equipment compound.

(D) Fencing. All equipment compounds shall be enclosed with an opaque fence or masonry wall in residential zoning districts and in any zoning district when the equipment compound adjoins a public right-of-way. Alternative equivalent screening may be approved through the site plan approval process described in section 6.6(E) below.

(E) Buffers. The equipment compound shall be landscaped with a minimum ten (10) foot wide perimeter buffer containing the following planting standards:

a. All plants and trees shall be indigenous to this part of Colorado.

b. Existing trees and shrubs on the site should be preserved and may be used in lieu of required landscaping as approved by the Planning Department.

c. One (1) row of evergreen trees with a minimum two (2) inch caliper, twenty-five (25) foot on center.

d. Evergreen shrubs capable of creating a continuous hedge and obtaining a height of at least five (5) feet shall be planted, minimum three (3) gallon or twenty-four (24) inches tall at the time of planting, five (5) foot on center.

e. Alternative landscaping plans which provide for the same average canopy and understory trees but propose alternative locating on the entire subject property may be considered and approved by the Director, provided the proposed alternative maximizes screening as provided above, and is otherwise consistent with the requirements of this section.

(F) Equipment Compound. The fenced-in compounds shall not be used for the storage of any excess equipment or hazardous materials. No outdoor storage yards shall be allowed in a tower equipment compound. The compound shall not be used as habitable space.

(G) Structural Standards. All new concealed or non-concealed PWSF towers shall be constructed and maintained to meet ANSI/EIA/TIA-G (as amended) Series III, Exposure C structural standards.

(H) Visibility

a. Concealed:

1. New concealed towers shall be designed to match adjacent structures and landscapes with specific design considerations such as architectural designs, height, scale, color, and texture.

2. New antenna mounts shall be concealed and match the concealed tower.

3. In residential zoning districts and in mixed use zoning districts that include residential uses, new concealed towers shall not be permitted on lots where the primary use or principal structure is single-family or two-family residential, group living, day care, or a multi-family structure of fewer than three stories. Examples of land uses/structure types in residential areas where the site may include a concealed tower are: school, religious assembly, fire station, stadium tower or stand, or other similar institutional / civic uses/structures.

b. Non-concealed: New antenna mounts shall be flush-mounted unless the applicant can demonstrate that flush-mounted antennas will not reasonably meet the network objectives of the desired coverage area or that more co-locations will be available on the tower if flush-mounting is not required.

c. Concealed and Non-concealed:

1. New concealed and non-concealed towers shall be configured and located in a manner that shall minimize adverse effects including visual impacts on the landscape and adjacent properties.

2. A balloon test shall be required subsequent to the receipt of the photo simulations in order to demonstrate the proposed height and concealment solution of the PWSF. The applicant shall arrange to raise a red or orange colored balloon no less than three (3) feet in diameter at the maximum height of the proposed tower, and within twenty-five (25) horizontal feet of the center of the proposed tower. The applicant shall meet the following for the balloon test:

i. Applicant must inform the Planning Department and abutting property owners in writing of the date and times, including alternative date and times, of the test at least fourteen (14) days in advance.

ii. A 3' by 5' sign with lettering no less than 3 inches high stating the purpose of the balloon test shall be placed at closest major intersection of proposed site.

iii. The date, time, and location, including alternative date, time and location, of the balloon test shall be advertised in a locally distributed paper by the applicant at least seven (7) but no more than fourteen (14) days in advance of the test date.

iv. The balloon shall be flown for at least four (4) consecutive hours during daylight hours on the date chosen. The applicant shall record the weather, including wind speed during the balloon test.

v. Re-advertisement will not be required if inclement weather occurs.

3. Towers shall be constructed to accommodate antenna arrays as follows:

i. Up to 120 feet in height shall be engineered and constructed to accommodate no fewer than four (4) antenna arrays.

ii. All towers between 121 feet and 150 feet shall be engineered and constructed to accommodate no fewer than five (5) antenna arrays.

4. Grading shall be minimized and limited only to the area necessary for the new tower and equipment compound.

5. Sounds. No unusual sound emissions such as alarms, bells, buzzers, or the like are permitted. Emergency generators are allowed. Sound levels shall not exceed 65 db as measured at the property boundaries.

(13) Broadcast Towers

No new broadcast facilities shall be constructed or installed without a site plan review and a permit under this Section. No new broadcast facilities shall be permitted unless the applicant provides a valid FCC Construction Permit and demonstrates that no existing broadcast tower can accommodate the applicant's proposed use. A pre-application conference shall be required for any new broadcast facility.

(i) Development Standards.

(A) Height. Height for broadcast facilities shall be evaluated on a case-by-case basis; the determination of height contained in the applicant's FCC Form 351/352 construction permit or application for construction permit and an FAA determination of no hazard (FAA Form 7460/2) shall be considered prima facie evidence of the tower height required for such broadcast facilities.

(B) Setbacks. New broadcast facilities and anchors shall be setback a minimum of five hundred (500) feet from any single-family dwelling unit on same zone lot; and a minimum of 1 foot for every 1 foot of tower height from all adjacent lots of record.

(C) Equipment Cabinets. Except for AM broadcast facilities, cabinets shall not be visible from pedestrian views.

(D) Fencing. All broadcast facility towers, AM antenna(s) towers, and guy anchors shall each be surrounded with an anti-climbing fence compliant with applicable FCC regulations.

(E) Buffers

a. Except for AM broadcast facilities, it is the intent that all pedestrian views from public rights-of-ways and adjacent residential land uses be screened from proposed broadcast facilities pursuant to Article VIII Section 1.0(E) & (F). AM broadcast facilities shall, where practicable, use artificial screening devices in lieu of natural vegetation for screening its ground equipment located at the base of AM tower(s).

b. Alternative landscaping plans which provide for the same average canopy and understory trees but propose alternative siting on the entire subject property on which the proposed facility is projected may be considered and approved by the planning division, provided the proposed alternative maximizes screening as provided above, and is otherwise consistent with the requirements of this section.

(F) Signage.

a. Commercial messages shall not be displayed on any tower.
b. The only signage that is permitted upon an antenna support structure, equipment cabinets, or fence shall be informational, and for the purpose of identifying the antenna support structure (such as ASR registration number), as well as the party responsible for the operation and maintenance of the facility; i.e. the address and telephone number, security or safety signs, and property manager signs (if applicable).

(G) If more than two hundred twenty (220) volts are necessary for the operation of the facility, signs located every twenty (20) feet and attached to the fence or wall shall display in large, bold, high contrast letters (minimum height of each letter four (4) inches) the following: "HIGH

VOLTAGE - DANGER".

(H) Lighting.

a. Lighting on towers shall meet and not exceed the FAA minimum standards.

b. Any lighting required by the FAA must be of the minimum intensity and number of flashes per minute (i.e., the longest duration between flashes) allowable by the FAA. Dual lighting standards are required and strobe light standards are prohibited unless required by the FAA. The lights shall be oriented so as not to project directly onto surrounding property, consistent with FAA requirements.

(I) Equipment Compound. The fenced in compounds shall not be used for the storage of any excess equipment or hazardous materials. No outdoor storage yards shall be allowed in a tower equipment compound. The compound shall not be used as habitable space.

(J) Grading shall be minimized and limited only to the area necessary for the new tower and equipment.

(K) Sounds. No unusual sound emissions such as alarms, bells, buzzers, or the like are permitted. Emergency generators are allowed. Sound levels shall not exceed 65db as measured at the closest property boundaries for the facility.

(L) Parking. One parking space is required for each tower development area. The space shall be provided within the leased area, or equipment compound or the development area as defined on the site plan.

(14) Variance – PWSF only

The purpose of this subsection (14) is to ensure that land use decisions with respect to siting of personal wireless service facilities (PWS) comply with 47 U.S.C. §332(c)(7)(B).

From time to time, due to unique characteristics specific to a single application, such as terrain, existing infrastructure, or other factors unique to the particular location and proposed PWSF thereon, strict application of a specific development standard for siting of PWSF could have the effect of unreasonably discriminating among providers of functionally equivalent services within the meaning of 47 U.S.C. §332(c)(7)(B)(i)(I) or of prohibiting personal wireless services within the meaning of 47 U.S.C. §332(c)(7)(B)(i)(II). In such a case the applicant, so long as the applicant is a provider of personal wireless services who will be using the facility for provision of personal wireless services, may seek a variance from such standard under this Section. Considerations of increased financial costs are not unique characteristics and shall NOT constitute a valid basis for a variance under this subsection (14). Moreover, the ONLY development standards from which a variance can be sought/approved under this subsection (14) are the following:

- Maximum tower height
- Flush mounting requirement
- Maximum height of antenna above base station/supporting structure (for non-concealed PWSF only)

To obtain a variance under this Section 21.04.030(q)(14), the provider must demonstrate by clear and convincing evidence that:

(i) Due to characteristics specific and unique to the particular facilities and location, strict application of the development standard would not permit the applicant to address a demonstrable coverage gap or would result in unreasonable discrimination among providers of functionally equivalent services; AND

(ii) There is no reasonable alternative available, other than varying the standard, to address the demonstrable coverage gap or to avoid unreasonable discrimination among providers of functionally equivalent services, including but not limited to use of another site, co-location on another facility, or modification of the proposed facility so as to meet the applicable standard; AND

(iii) The extent of the variance proposed is the minimum necessary to address the demonstrable coverage gap or to avoid unreasonable discrimination among providers of functionally equivalent services, as confirmed by qualified, independent third party review of the proposal.

The decision-maker for the variance shall be the decision-maker for the underlying permit type required in accordance with this Section and with the Use Table of Section 21.04.010. For example, if the facility requires an administrative permit, the Director would decide the variance request. If the facility requires a conditional use permit, the Planning Commission would decide the variance request.

INTRODUCED on first reading the _____ day of _____, 2016 and ordered published in pamphlet form.

PASSED and ADOPTED on second reading the ____ day of _____, 2016 and ordered published in pamphlet form.

_____

President of the Council

ATTEST:

_____

City Clerk