



Meridian Development Corporation **Historic Lighting Study**

January 3, 2014





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HISTORIC LIGHTING STUDY

EXECUTIVE SUMMARY

These study recommendations are to blend historic lighting between the existing roadway lighting as shown in Figures 1-11. This work will improve the lighting of the sidewalks and create the ambiance desired in the Downtown Core. The lighting improvement locations and costs are broken up into seven phases as shown below.

Opinion of Probable Cost Per Phase

Historic Lighting Study: Blend Historic Lighting with Existing Roadway Lighting

Phase	Cost
Phase 1: Main Street-Railroad Tracks to Pine Street	\$ 240,000
Phase 2: Pine Street-Main to 3rd Street	160,000
Phase 3: Main Street-Pine Street to Carlton Avenue	130,000
Phase 4: Main Street-Carlton Avenue to 1303 Main Street	200,000
Phase 5: Main Street-1303 Main Street to Cherry Lane	200,000
Phase 6: Main Street-King Street to Railroad Tracks	195,000
Phase 7: Pine Street-Main Street to Meridian Road	110,368
TOTAL	\$ 1,235,368

INTRODUCTION

The goal of this study is to analyze historic lighting in downtown Meridian and make recommendations for its placement throughout the Main Street corridor. The study areas, as shown in Figure 1, covers Main Street from King Street to Cherry Lane, Pine Street from Main Street to East Third Street, and Pine Street from Main Street to Meridian Road. The study area has been broken into seven construction phases and an estimated cost calculated for each.

The recommended alternative is based upon maintaining the American Association of State Highway and Transportation Officials (AASHTO) recommended levels for illumination intensity and uniformity of light, the most cost effective recommendation, and the alternative that provides a sense of community.

The City of Meridian and the Ada County Highway Department have made considerable investments in roadway lighting within the study corridor. This analysis identifies how best to maintain roadway lighting levels and reach the MDC's primary goal of creating an aesthetic feel to downtown Meridian.

ASSUMPTIONS AND ANALYSIS

Main Street and Pine Avenue roadways and walkways were classified as collectors with intermediate off-roadway light sources. The AASHTO Roadway Lighting Design Guide recommends the following average maintained illuminance:

Roadway - .8 Fc avg. 4:1 avg/min .4 max veiling luminance ratio

Sidewalk - .8 Fc avg. 4:1 avg/min

Veiling Luminance - .4 or less

Illuminance in roadway lighting is a measure of the light incidents on the pavement surface. It is measured in foot-candles. Luminance in roadway lighting is a measure of reflected light from the pavement surface that is visible to the motorist's eye.

Five photometric models were created using the AGi32 modeling software. The models evaluated the existing and proposed conditions for Pine Avenue and Main Street. The existing analysis established base values and the proposed analysis estimated model results. A photometric model was created based on the newly constructed Meridian Road. This section of road has historic lighting placed at 75 foot intervals.

The existing lighting configuration includes roadway light poles with a fixture height of 25 feet. The historic fixture used in the AGi32 model was an induction lamp retrofit as specified by the City of Meridian. The AGi32 modified file is similar to what was used on other studies.

EXISTING CONDITIONS

The existing lighting configuration of Main Street from King Street to Cherry Lane includes roadway and intersection lighting and historic light poles at the intersection of Broadway Avenue. The existing roadway lighting has 25 foot tall roadway light poles throughout the corridor. The majority of Main Street provides uniformity results slightly above AASHTO recommendations with smaller sections of the street below the recommendations. The existing sidewalks are lit but below the recommendations.

On Pine Avenue from Main Street to Third Street the lighting is placed only at the intersections. The existing lighting configuration does not meet AASHTO standards.

ALTERNATIVES

Three alternatives were evaluated for this study. They include 1) removing existing roadway lighting throughout the corridor and replacing them with historic poles, 2) adding historic light poles between existing 25 foot roadway poles, and 3) raising the existing roadway pole height to 30 foot and adding historic poles between the existing poles.

Additionally, multiple historical light configurations were modeled to determine the best spacing of historical poles throughout the corridor. Results from the modeled corridor indicate that staggered historical poles at 75 foot spacing would exhibit optimum lighting levels for the Main Street corridor. On Pine Street modeled results suggest that historic lighting be constructed at 100 foot staggered spacing. This alternative is depicted on Figure 11.

RESULTS/ RECOMMENDATIONS

Main Street

Of the alternatives evaluated for this study, the most cost effective option that meets the MDC's goals of lighting sidewalks throughout the corridor and creates an aesthetic feel to downtown corridor is to retain the existing 25 foot roadway poles and insert historic poles at a staggered 75 foot spacing configuration. The recommended alternative takes advantage of the investment the city has made in roadway lighting and meets AASHTO standards. Results of modeled data suggest that removing existing poles and replacing them with historic lighting would not meet the AASHTO standards for veiling luminance and cost for the option would exceed other suggested alternatives.

Pine Street

The recommendation is to construct historic light poles at 100 foot staggered spacing which brings lighting levels to AASHTO standards and provides a continuation of the appearance that exists throughout downtown Meridian. Additional work would be required along Pine Avenue including the relocation of sidewalk and placement of curb and gutter.

OPINION OF PROBABLE COST

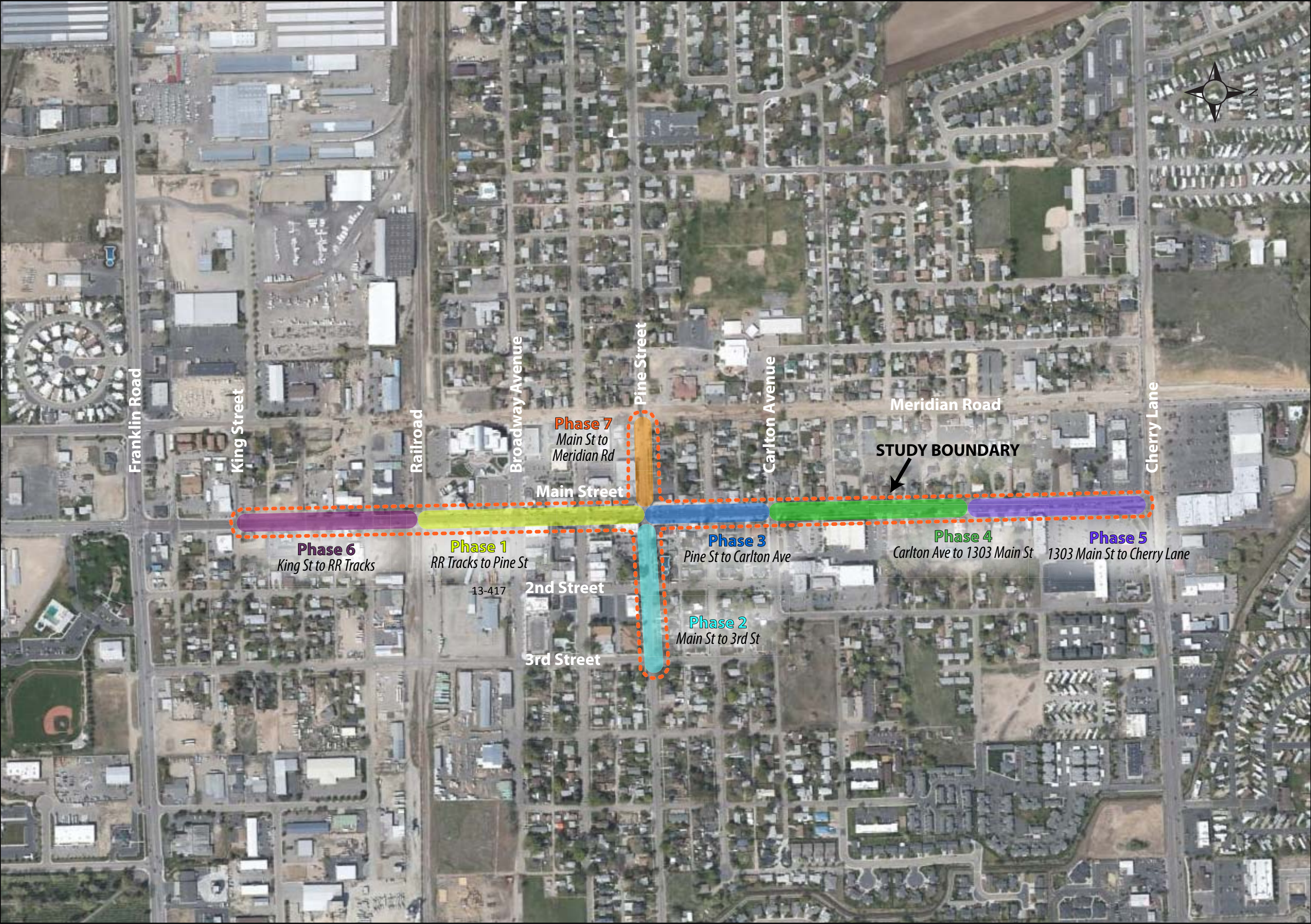
Opinion of Probable Cost (Major Items)

Historic Lighting Study: MDC Boundary to Central/Waltman

Item Description	Unit	Approx. Quantity	Unit Price	Bid Price
Historic Street Light	EA	109	\$ 5,000.00	\$ 545,000
Wire Conductor	LF	57,600	2.00	115,200
Conduit	LF	9,600	4.50	43,200
Junction Box	EA	109	500.00	54,500
Service Pedestal	EA	4	4,300.00	17,200
Idaho Power Fees	LS	1	500.00	500
Concrete Repair	SY	250	45.00	11,250
Excavation/Asphalt Remove	CY	2,000	5.00	10,000
Concrete Removal	SY	500	10.00	5,000
Paving	TON	900	70.00	63,000
Conduit Trench	LF	9,600	3.50	33,600
Mobilization	LS	10%	89,845	89,845
SUBTOTAL				\$ 988,295
Design	LS	10%	98,830	98,830
Contingency	LS	5%	49,415	49,415
Construction Inspection	LS	10%	98,830	98,830
TOTAL				\$ 1,235,369

The average electric cost for each historic 85 watt figure is \$20 per year.

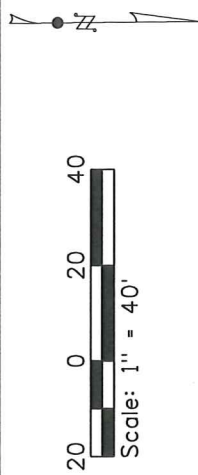
The opinion of most probable cost herein is based on our perception of current conditions at the project location. This estimate reflects our opinion of probable costs at this time and is subject to change as the project design matures. Keller Associates has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Keller Associates cannot and does not warrant or guarantee that proposals, bids or actual construction costs will not vary from the costs presented herein.



	
Not to Scale	
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MERIDIAN DEVELOPMENT CORPORATION HISTORIC LIGHTING STUDY	
Figure : 1	



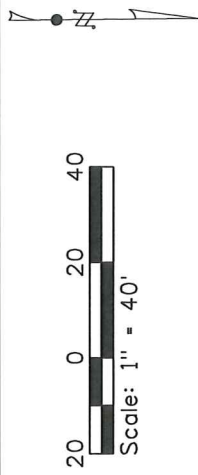
<p>Figure:</p> <p>2</p>	<p>KELLER associates</p> <p>131 SW 5th Avenue, Suite A Meridian, Idaho 83642 (208) 288-1992</p>	<p>MERIDIAN DEVELOPMENT CORPORATION HISTORIC LIGHTING STUDY</p>
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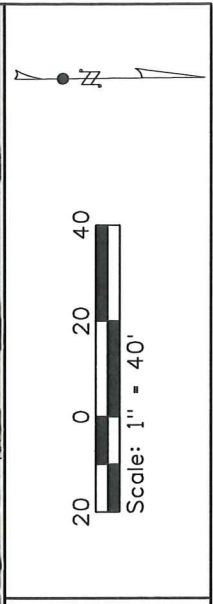
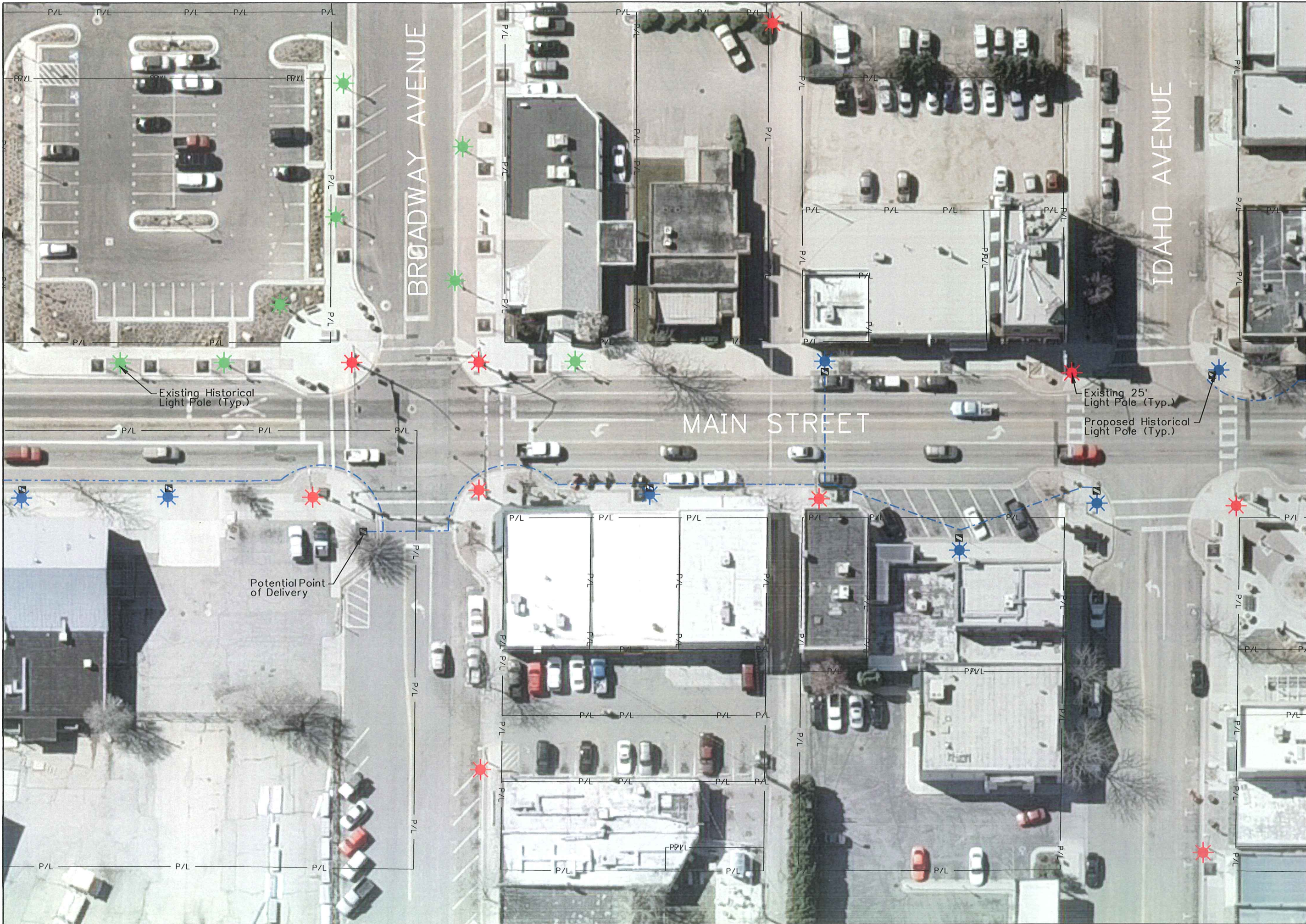
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Figure:
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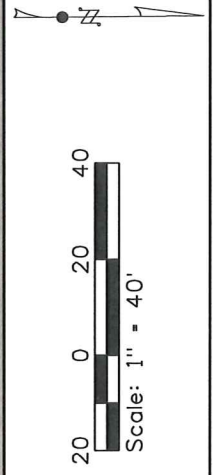
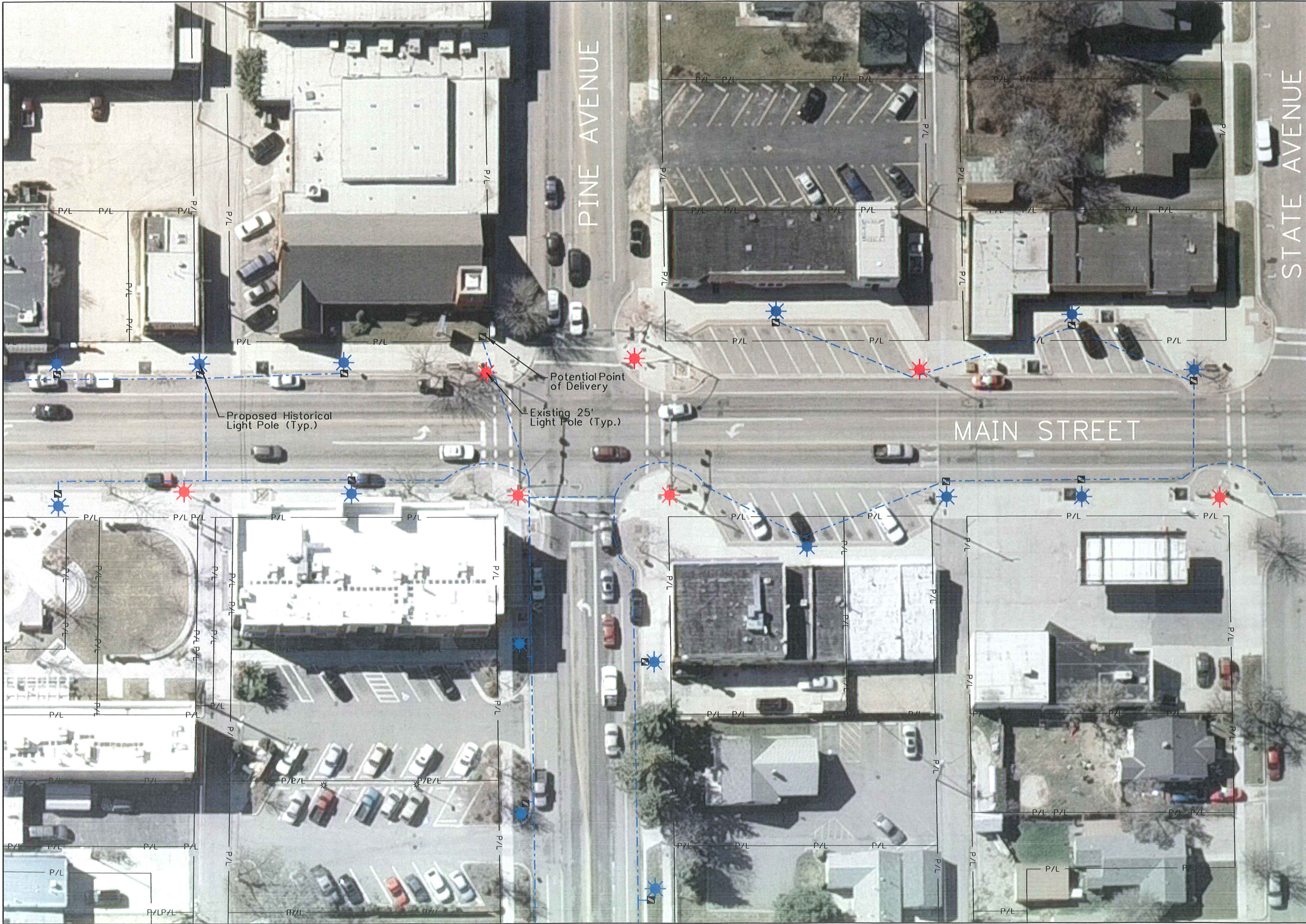


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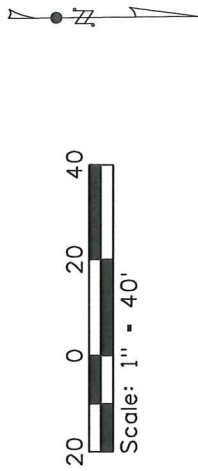
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Figure:
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MERIDIAN DEVELOPMENT CORPORATION
HISTORIC LIGHTING STUDY

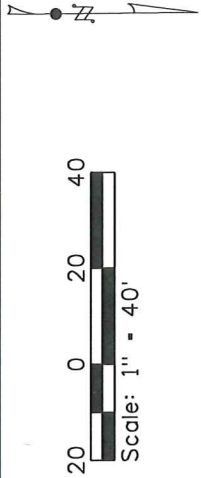


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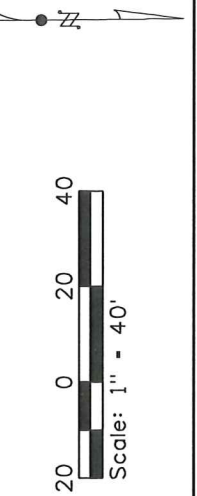


<p>20 0 20 40 Scale: 1" = 40'</p>	<p>KELLER associates 131 SW 5th Avenue, Suite A Meridian, Idaho 83642 (208) 288-1992</p>	<p>MERIDIAN DEVELOPMENT CORPORATION HISTORIC LIGHTING STUDY</p>	<p>Figure: 8</p>
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Figure:
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