

Town Of Nederland  
NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY  
NEDERLAND COMMUNITY CENTER 750 Hwy 72 Nederland, CO 80466  
Multi-Purpose Room  
August 8, 2018 @ 6:00 pm  
AGENDA

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A. CALL TO ORDER

B. ROLL CALL

C. PUBLIC COMMENT

D. CONSENT AGENDA

1. Approval of Warrants - Amanda Kneer/Treasurer
2. Approval of the July 11, 2018 Meeting Minutes - Cindy Downing/Secretary

E. INFORMATIONAL ITEMS

1. Treasurers Report - Amanda Kneer/Treasurer
2. Town of Nederland Administrator Report - Karen Gerrity/Town Administrator
3. Chair Report – Susan Schneider/Chair
4. Executive Director Report - Josiah Masingale/Executive Director

F. ACTION ITEMS

G. DISCUSSION ITEMS

1. Lakeview Drive and CO 119/72 Intersection
2. Paid Parking in Visitor's Center Parking Lot and along 1<sup>st</sup> Street
3. Discover Nederland Guide Marketing
4. RiverWalk Preliminary Design

H. OTHER BUSINESS

I. ADJOURNMENT

NEXT REGULAR MEETING: September 12, 2018 6:00 pm at the Nederland Community Center Multi Purpose Room

The NDDA Board encourages citizen participation. Public hearings and the "unscheduled citizens" agenda item allow an opportunity to address the Board. Discussion is limited to 3 minutes and please address your comments to the Board. Thank you for your cooperation.

The NDDA Board may take action on any item included on this agenda, regardless of the heading under which such item appears. Discussion items may become action items if the Board determines that deferring final action on an item to a subsequent meeting is unnecessary or unwarranted and that taking immediate action does not compromise any third-party's rights.

Copies of the agendas and meeting packet are available at no cost via email from [josiah@nederlanddowntown.org](mailto:josiah@nederlanddowntown.org). The information is reviewed and studied by the Board members, eliminating lengthy discussions to gain basic understanding. Short discussion on agenda items does not reflect lack of thought or analysis.

Nederland Downtown Development Authority  
Warrant Report

Invoice Number	Date	Vendor	Invoice Amt	Approved Amt	Account Number	Account Description	Budgeted \$	Budget Remaining	Warrants presented at:
2018-29	6/19/2018	Elizabeth Allen	\$ 849.00	\$ 849.00	70-75-6500	Infrastructure/Roundabout		3,755.00	1,503.33
001294	6/26/2018	City Floral	\$ 330.00	\$ 330.00	70-75-6500	Infrastructure/Hanging Baskets		1,800.00	1,470.00
2018-30	6/25/2018	Elizabeth Allen	\$ 1,480.00	\$ 1,480.00	70-75-5270	Downtown Area/Beautification		10,000.00	4,222.00
41851	2/28/2018	Total Testing	\$ 125.00	\$ 125.00	70-75-5410	Office Supplies		100.00	(55.00)
3153	7/2/2018	The Mountain-Ear	\$ 150.00	\$ 150.00	70-75-6500	Infrastructure/Noxious Weeds	need noxious weed budget		
3110	6/11/2018	The Mountain-Ear	\$ 75.00	\$ 50.00	70-75-5750	Advertising	500.00		214.99
				\$ 25.00	70-75-6000	2018/2019 TARP Grant Expenses	11,475.00		11,450.00
2018-31	6/28/2018	Eileen Purdy	\$ 33.98	\$ 33.98	70-75-6000	2018/2019 TARP Grant Expenses	11,475.00		11,416.02
	6/30/2018	Town of Nederland	\$ 937.37	\$ 937.37	70-75-6500	Infrastructure/Visitor Center	30,000.00		8,133.25
	6/30/2018	Town of Nederland	\$ 955.24	\$ 955.24	70-75-5129	DDA Secretary & Personnel	12,600.00		8,057.45
2018-32	7/26/2018	Eileen Purdy	\$ 22.88	\$ 22.88	70-75-6000	2018/2019 TARP Grant Expenses	11,475.00		11,393.14
1647	8/1/2018	Wideawake Media	\$ 70.00	\$ 70.00	70-75-6000	2018/2019 TARP Grant Expenses	11,475.00		11,323.14
	7/31/2018	Town of Nederland	\$ 1,975.35	\$ 1,975.35	70-75-6500	Infrastructure/Visitor Center	30,000.00		6,157.90
	7/31/2018	Town of Nederland	\$ 1,665.70						
				\$ 1,570.18	70-75-5129	DDA Secretary & Personnel	12,600.00		6,487.27
				\$ 23.88	70-75-6000	2018/2019 TARP Grant Expenses	11,475.00		11,299.26
				\$ 71.65	70-75-6500	Infrastructure/Noxious Weeds	need noxious weed budget		
2018-33	7/31/2018	Cindy Downing	120	\$ 120.00	70-75-5129	DDA Secretary & Personnel	12,600.00		6,367.27

Date	Amount	Vendor	Invoice No	Description	
6-Jun	900.00	Waynewright	1897	Removed and installed 3 doors	
1-Jun	37.37	Ace Hardware - May	2018-05	29.88 chain for benches; 7.49 paint for sidewalk	
	937.37				
8-Jun	236.50	Payroll Run 1455: 5/19/2018 - 6/1/2018	19105	Pay	10.75 hours
8-Jun	20.22	Payroll Run 1455: 5/19/2018 - 6/1/2018	19105	Taxes	
22-Jun	643.50	Payroll Run 1467: 6/2/2018 - 6/15/2018	19152	Pay	29.25 hours
22-Jun	55.02	Payroll Run 1467: 6/2/2018 - 6/15/2018	19152	Taxes	
	955.24				

DDA Expenses to be reimbursed to Town:

**Loan Project : Beautification**

10-00-1200

**Loan Project: Visitor Center**

10-00-1200

Date	Amount	Vendor	Invoice No	Description	
1-Jun	959.68	Home Depot charges - May	2018-06	VC - Vinyl Plank Flooring	
1-Jun	747.67	Home Depot charges - May	2018-06	VC - Front Door	
1-Jun	268.00	Home Depot charges - May	2018-06	VC - Side Door	
	1,975.35				
6-Jul	885.50	Payroll Run : 6/16 - 6/29		Pay	40.25 hours
6-Jul	75.71	Payroll Run : 6/16 - 6/29		Taxes	
20-Jul	649.00	Payroll Run : 6/30 - 7/13		Pay	29.5 hours
20-Jul	55.49	Payroll Run : 6/30 - 7/13		Taxes	
	1,665.70				69.75

Town Of Nederland  
NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY  
NEDERLAND COMMUNITY CENTER 750 Hwy 72 Nederland, CO 80466  
Multi-Purpose Room  
July 11, 2018 6:00 pm  
DRAFT MEETING MINUTES

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A. CALL TO ORDER

Chair Susan Schneider called the meeting to order at 6:05 pm

B. ROLL CALL

Board Present: Steve Karowe, Susan Schneider, Claudia Schauffler, Brent Tregaskis, Mark Stringfellow, Rea Wrobel, Dallas Masters

Staff Present: Josiah Masingale (Executive Director), Cindy Downing (Secretary)

Guests Present: Karen Gerrity, Town of Nederland Administrator

Absent: Amanda Kneer had an excused absence

C. PUBLIC COMMENT

Elizabeth Allen thanked the NDDA for their support of beautification for the Town. She also suggested contracting a local artisan to sculpt a statue of George Blevins for the traffic circle.

Gregory Miller, owner of the commercial property at 92 East First Street, said he is concerned about the Town spraying for noxious weeds. He is highly against the use of any pesticide, and would like the Town to avoid it if possible. He added that there is a group from CSU who will volunteer time to pull weeds for noxious weed control.

D. CONSENT AGENDA

1. Approval of Warrants – Amanda Kneer/Treasurer

Amanda was not available for the meeting. Josiah Masingale said they have decided to do financial reports a month behind so they have sufficient time to gather information for the report. The June financials will be on the August consent agenda.

2. Approval of the June 11, 2018 Meeting Minutes – Cindy Downing/Secretary

Motion to approve the June 11, 2108 Meeting Minutes; 2nd. Motion approved with 1 abstaining (Susan Schneider)

E. INFORMATIONAL ITEMS

1. CO Main Street Program Overview – Gayle Langley/CO Main Street Coordinator/DOLA

Gayle Langley from the Colorado Main Street Program presented the Board with information on this program. Information was included in the packet.

## 2. Boulder County PACE Program Overview – Matt Hannon/Business Sustainability Advisor

Matt works with businesses to save on utility bills while helping the environment. He will meet with Josiah Masingale to discuss outreach with local businesses, with the intention that a workshop will be included in this effort.

## 3. Treasurers Report – Amanda Kneer/Treasurer

Amanda was not available for the meeting

## 4. Town of Nederland Administrator Report – Karen Gerrity/Town Administrator

A report was included in the packet

The 4th of July parade was highly successful this year

Highlights of Colorado Municipal League Conference:  
4 page summation of legislative updates are included in the packet.

Short term rentals-The planning Commission met on June 27 and considered a draft ordinance on short term rentals. They asked staff to come up with language for this ordinance. This will be a discussion item at the next BOT meeting on July 16.

CDOT: Met with CDOT this past week, and is having conversations about about their contacts and processes. CDOT said one of their priorities is to work on the highway through town. Karen will be attending their quarterly meetings.

Karen asked the DDA where their priority level was with the 119 Lakeview intersection. Mark Stringfellow would like to form a committee to discuss this project and provide input to CDOT, as they will be involved in reviewing the design and providing input.

Chris Pelltier was unable to attend the meeting. Karen Gerrity provided a brief report on his behalf.

Visitors Center: Exterior painting is completed, flooring has been purchased and will be installed the first week of August.

Chipeta Park: Fishing dock is complete, the trail behind the fishing pond is complete, benches are being installed, all trails have been resurfaced. They future plans are to install ADA compliant picnic tables, finish parking area reconfiguration, ADA parking spots and signs, trash and recycling at Vet's Memorial.

Chris requested that the DDA provides signage that will direct people to the parks and facilities. He also requested that the DDA purchase counters to attach to the bathroom doors that will provide information on the number of people using the facilities.

## 5. Chair Report – Susan Schneider/Chair

Susan did not provide a report

## 6. Executive Director Report – Josiah Masingale/Executive Director

A report was included in the packet

Conflict of Interest Annual Statement. Josiah will email the Board this statement for their review and signature. This will need to be completed by Board members July of every year.

The Board of Directors roster is updated.

Committee language: Josiah would like the Board members to provide him with input on any changes to the language. He will email the Board, and will work out the final language and members of each committee.

Riverwalk project: Josiah drafted a letter and sent it to the 12 property owners that are on the riverwalk area. He also did public outreach in regards to this project. He will keep the Board updated.

## F. ACTION ITEMS

### 1. Chair and Vice-Chair Elections

Motion to approve Susan Schneider Re-Appointment as Chair to the Board for an additional term: 2nd. Motion was approved.

Motion to approve Brent Tregaskis Re-Appointment as Vice Chair to the Board; 2nd. Motion was approved.

### 2. Public Art Project Scope and Budget

There is a \$20,000 budget with an approval basis. A committee will be formed to manage and oversee this project, and Karen Gerrity will have final approval.

Dallas Masters suggested the Board provide backup documentation about the specific project before requesting approval from the BOT. Also, documentation of how this project fits into the Master Plan, and how it will affect other projects. He suggested the DDA draft a schedule and priority list of projects to present to the BOT as an outline for future projects.

The Board discussed having a workshop to discuss and prioritize projects, and will be following up with Josiah to see what dates will work.

Karen Gerrity suggested having an agreement with the business that will be providing the canvas for the artwork in regards to maintenance, insurance, agreement with the artist, and turnover time.

Rea Wrobel suggested reducing the amount requested in the language to \$2,500.

Motion to change the resolution to reduce the amount to \$2,500 for a public art project, and remove the language that defines the art; 2nd. Motion was approved.

### 3. DDA Attorney Services

Josiah Masingale researched three potential attorney services. After Board discussion of each service, it was decided that Paul C Benedetti would be the best fit for the services needed.

Motion to approve Paul C. Benedetti for attorney services: 2nd. Motion was approved.

## G. DISCUSSION ITEMS

## 1. Short-Term Rental Ordinance

This item was disused by the Board during the Administrator report.

## 2. DDA Attorney Services

Motion to move this item to an action item; 2nd. Motion was approved.

## H. OTHER BUSINESS

The Parking Project is still awaiting quotes for construction.

## I. ADJOURNMENT

Motion to adjourn; 2nd. Meeting adjourned at 8:23pm.

### NEXT REGULAR MEETING:

August 8 @ 6:00 pm. Nederland Community Center Multi purpose Room

The NDDA Board encourages citizen participation. Public hearings and the "unscheduled citizens" agenda item allow an opportunity to address the Board. Discussion is limited to 3 minutes and please address your comments to the Board. Thank you for your cooperation. The NDDA Board may take action on any item included on this agenda, regardless of the heading under which such item appears. Discussion items may become action items if the Board determines that deferring final action on an item to a subsequent meeting is unnecessary or unwarranted and that taking immediate action does not compromise any third-party's rights. The NDDA Board of Trustees meeting packets and agendas are prepared on Monday before the Wednesday meetings and are available on the NDDA website, [www.nederlanddowntown.org](http://www.nederlanddowntown.org). Copies of the agendas and meeting packet are available at no cost via email from [josiah@nederlanddowntown.org](mailto:josiah@nederlanddowntown.org). Short discussion on agenda items does not reflect lack of thought or analysis.



**Nederland Downtown Development Authority**  
**Balance Sheet**  
**As of July 31, 2018**

	<u>Jul 31, 18</u>
<b>ASSETS</b>	
<b>Current Assets</b>	
<b>Checking/Savings</b>	
70-1002 · DDA Cash Accounts	207,115.13
80-1002 · DDA Cash Accounts (TIF)	343,812.08
<b>Total Checking/Savings</b>	550,927.21
<b>Accounts Receivable</b>	
70-1100 · Taxes Receivable	411.41
70-1200 · Accounts Receivable	76,344.85
80-1100 · Taxes Receivable (TIF)	2,303.92
<b>Total Accounts Receivable</b>	79,060.18
<b>Total Current Assets</b>	629,987.39
<b>TOTAL ASSETS</b>	<b><u>629,987.39</u></b>
<b>LIABILITIES &amp; EQUITY</b>	
<b>Liabilities</b>	
<b>Current Liabilities</b>	
<b>Accounts Payable</b>	
70-2000 · Accounts Payable	142.88
<b>Total Accounts Payable</b>	142.88
<b>Other Current Liabilities</b>	
Payable to Town	3,641.05
70-2100 · Accrued Payables	259,467.81
<b>Total Other Current Liabilities</b>	263,108.86
<b>Total Current Liabilities</b>	263,251.74
<b>Total Liabilities</b>	263,251.74
<b>Equity</b>	366,735.65
<b>TOTAL LIABILITIES &amp; EQUITY</b>	<b><u>629,987.39</u></b>

Nederland Downtown Development Authority

	Jan 2018	Feb 2018	Mar 2018	Apr-18	May-18	Jun-18	Jul-18	YTD Actual	2018 Budget	Actual vs. Budget
<b>DDA (70):</b>										
Revenues										
70-75-4000 Property Taxes	5,043.58	5,263.41	1,441.11	6,298.91	2,623.27	3,407.05	255.96	24,333.29	28,673.00	(4,339.71)
70-75-4002 Specific Ownership Taxes	152.85	173.59	154.37	175.53	159.07	170.08	159.29	1,144.78	1,600.00	(455.22)
70-75-4900 Interest	132.15	149.05	210.58	256.03	279.78	297.64	397.04	1,722.27	600.00	1,122.27
70-75-4915 Donations	0.00	0.00	0.00	0.00	0.00	0.00	600.00	600.00	0.00	600.00
70-75-4916 In-Kind Donations	0.00	0.00	0.00	124.99	18.46	0.00	0.00	143.45	0.00	143.45
70-75-XXXX Loan Proceeds	0.00	0.00	0.00	0.00	0.00	40,000.00	0.00	40,000.00	0.00	40,000.00
70-75-8402 TARP	0.00	0.00	0.00	525.00	0.00	0.00	0.00	525.00	0.00	525.00
	<u>5,328.58</u>	<u>5,586.05</u>	<u>1,806.06</u>	<u>7,380.46</u>	<u>3,080.58</u>	<u>43,874.77</u>	<u>1,412.29</u>	<u>68,468.79</u>	<u>30,873.00</u>	<u>37,595.79</u>
Expenditures										
Downtown Area/Beautification	0.00	0.00	150.00	23.88	3,268.00	2,360.00	0.00	5,801.88	10,000.00	(4,198.12)
Office Rent	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	600.00	(600.00)
70-75-5110 IT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	250.00	(250.00)
70-75-5115 Website	0.00	0.00	0.00	0.00	0.00	110.00	0.00	110.00	1,200.00	(1,090.00)
70-75-5125 Accounting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	600.00	(600.00)
70-75-5129 Personnel	104.00	144.00	144.00	1,569.00	1,626.31	955.24	1,690.18	6,232.73	12,600.00	(6,367.27)
70-75-5175 Elections	0.00	7,050.00	0.00	(7,050.00)	0.00	0.00	0.00	0.00	10,000.00	(10,000.00)
70-75-5410 Office Supplies	30.00	0.00	0.00	124.99	18.46	0.00	0.00	173.45	100.00	73.45
70-75-5710 Postage/Shipping	0.00	0.00	10.00	0.00	0.00	0.00	10.00	20.00	100.00	(80.00)
70-75-5735 Boulder County Tax Collection	75.65	78.95	21.62	94.49	39.34	51.10	3.84	364.99	450.00	(85.01)
70-75-5740 Bank Fees	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	(50.00)
70-75-5750 Advertising	14.99	125.00	0.00	0.00	250.00	50.00	0.00	439.99	500.00	(60.01)
70-75-5770 Printing/Copying	0.00	2.50	10.27	4.95	0.00	0.00	0.00	17.72	250.00	(232.28)
70-75-5810 Conference/Training	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,000.00	(2,000.00)
70-75-5830 Meals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	(500.00)
70-75-5850 Annual Membership/Dues	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	300.00	(300.00)
70-75-5999 Admin & Finance Allocation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,200.00	(1,200.00)
70-75-6000 TARP grant expenses	996.87	3,399.64	1,538.13	3,595.94	5.97	58.98	46.76	9,642.29	8,547.71	1,094.58
70-75-6500 Infrastructure	0.00	0.00	135.65	10,854.38	10,075.00	3,383.39	2,196.99	26,645.41	0.00	26,645.41
	<u>1,221.51</u>	<u>10,800.09</u>	<u>2,009.67</u>	<u>9,217.63</u>	<u>15,283.08</u>	<u>6,968.71</u>	<u>3,947.77</u>	<u>49,448.46</u>	<u>38,647.71</u>	<u>10,800.75</u>
Net Income	<u>4,107.07</u>	<u>(5,214.04)</u>	<u>(203.61)</u>	<u>(1,837.17)</u>	<u>(12,202.50)</u>	<u>36,906.06</u>	<u>(2,535.48)</u>	<u>19,020.33</u>	<u>(7,774.71)</u>	<u>26,795.04</u>

	Jan 2018	Feb 2018	Mar 2018	Apr-18	May-18	Jun-18	Jul-18	YTD Actual	2018 Budget	Actual vs. Budget
<b>DDA TIF (80):</b>										
Revenues										
80-75-4005 TIF Taxes	48,104.52	50,201.16	13,744.30	59,965.41	24,937.01	32,487.78	2,338.99	231,779.17	190,000.00	41,779.17
80-75-4998 Fund Reserve - Transfer In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<u>48,104.52</u>	<u>50,201.16</u>	<u>13,744.30</u>	<u>59,965.41</u>	<u>24,937.01</u>	<u>32,487.78</u>	<u>2,338.99</u>	<u>231,779.17</u>	<u>190,000.00</u>	<u>41,779.17</u>
Expenditures										
80-75-5735 Boulder County Tax Collection	721.59	753.00	206.16	899.48	374.06	487.30	35.07	3,476.66	2,900.00	576.66
80-75-7100 Loan Principal	0.00	0.00	0.00	7,000.00	0.00	0.00	0.00	7,000.00	0.00	7,000.00
80-75-7200 Loan Interest	0.00	0.00	0.00	50.00	0.00	0.00	0.00	50.00	0.00	50.00
	<u>721.59</u>	<u>753.00</u>	<u>206.16</u>	<u>7,949.48</u>	<u>374.06</u>	<u>487.30</u>	<u>35.07</u>	<u>10,526.66</u>	<u>2,900.00</u>	<u>7,626.66</u>
Net Income	<u>47,382.93</u>	<u>49,448.16</u>	<u>13,538.14</u>	<u>52,015.93</u>	<u>24,562.95</u>	<u>32,000.48</u>	<u>2,303.92</u>	<u>221,252.51</u>	<u>187,100.00</u>	<u>34,152.51</u>

<b>2018</b>	ED Budget	Secretary Budget
	<u>\$9,000</u>	<u>\$3,600</u>
Jan		104.00
Feb		144.00
Mar		144.00
Apr	1,409.00	160.00
May	1,546.31	80.00
June	955.24	
July	1,570.18	120.00
August		
September		
October		
November		
December		
YTD Spent	5,480.73	752.00
Remaining Budget	\$3,519.27	\$2,848.00

**Nederland Downtown Development Authority**  
**Transaction Detail By Account**  
 January through July 2018

70-6500 - Infrastructure		Type	Date	Num	Name	Memo	Amount	Loan Proceeds/Budget Borrowed from Town	Remaining to Spend
Bill	06/26/2018	001294	City Floral		hanging baskets		330.00	???	
General Journal	04/30/2018		Town of Nederland		January - April visitors center upgrade		10,854.38		
General Journal	06/30/2018		Town of Nederland		June visitors center upgrade		937.37		
General Journal	05/31/2018		Town of Nederland		May visitors center upgrade		10,075.00		
General Journal	07/31/2018		Town of Nederland		Visitor Center July 2018		1,975.35		
							23,842.10	Visitor Center YTD Spent	30,000.00
									6,157.90
Bill	07/02/2018	3153	The Mountain-Ear		noxious weeds		150.00		
General Journal	07/31/2018		Town of Nederland		Noxious Weeds project 3 hours Josiah Masingale July 2018		71.64		
							221.64	Noxious Weeds YTD Spent	???
Bill	03/12/2018	2018-22	Ronald Mitchell		roundabout		135.65		
Bill	06/04/2018	DDA 2018-01	Mark Stringfellow		roundabout		1,267.02		
Bill	06/19/2018	2018-27	Elizabeth Allen		roundabout		849.00		
							2,251.67	Roundabout YTD Spent	???

**Nederland Downtown Development Authority**  
**Transaction Detail By Account**  
 January through July 2018

Type	Date	Num	Name	Memo	Class	Clr	Split	Amount	Balance
70-5270 · Downtown Area (DDA)									
Bill	03/14/2018	2018-26	Farm Tub	5 rolls of wicking wool	70		70-2000 · Accounts Payable	150.00	150.00
General Journal	04/30/2018		Josiah Masingale	Beautification - 1 hour April 2018	70		70-5129 · DDA Secretary & Personnel	23.88	173.88
Bill	05/30/2018	2018-25	Elizabeth Allen	materials	70		70-2000 · Accounts Payable	3,268.00	3,441.88
Bill	06/05/2018	001289	City Floral	flowers	70		70-2000 · Accounts Payable	880.00	4,321.88
Bill	06/25/2018	2018-30	Elizabeth Allen	labor	70		70-2000 · Accounts Payable	1,480.00	5,801.88
Total 70-5270 · Downtown Area (DDA)								<u>5,801.88</u>	<u>5,801.88</u>
<b>TOTAL</b>								<u><b>5,801.88</b></u>	<u><b>5,801.88</b></u>



## AGENDA INFORMATION MEMORANDUM NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY

Meeting Date: August 8, 2018

Prepared By: Karen Gerrity, Town Administrator

Dept: Admin

Consent  Information  Action  Discussion

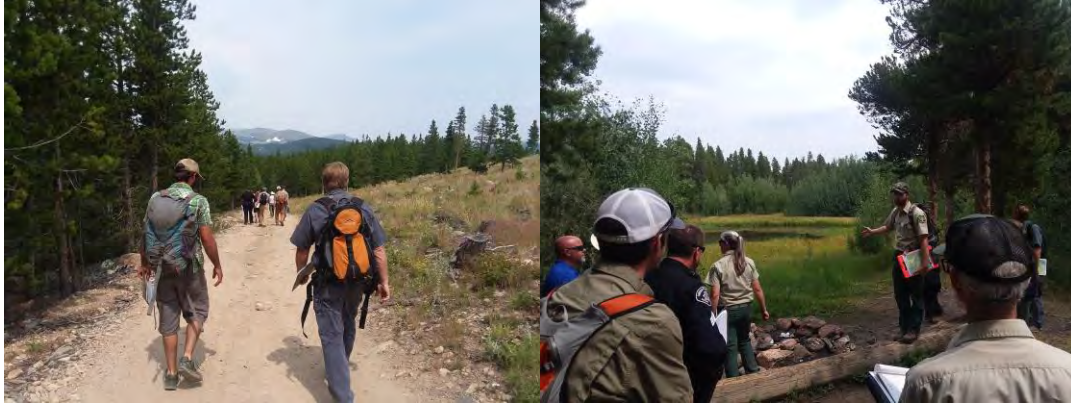
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### STAFF REPORT FROM TOWN ADMINISTRATOR

#### USFS MEETING AT WEST MAG



On August 1, Trustee Baumhover, the Town Marshal and Town Administrator met with members of the United States Forest Service, Colorado Parks and Wildlife, Boulder County Sheriff's Office and the Nederland Fire Protection District to evaluate dispersed use impacts and potential management options in West Magnolia.



This site visit was very productive and led to a brainstorming session and collaborative discussion. Solutions considered fell under the umbrellas of Engineering, Education and Enforcement which included adding USFS approved fire rings to sites, reorganizing the camping sites, having more on-site presence (ie: camp host), improving informational signage, and instituting a registration system for users that could include fees. The USFS Boulder Ranger Angela Gee will bring back these ideas to her team for further evaluation.

## **SHORT TERM RENTALS**

The Board of Trustees (BOT) included Short Term Rentals as a discussion item at their July 17 meeting. After listening to extensive public comment, the BOT tabled their discussion. They held a work session on August 7 after the regular BOT meeting.

## **CHIPETA PARK**

The improvements to Chipeta Park continue and the trail is complete, most of the benches are installed and trees have been purchased. The Public Works team estimates that the work will be completed by September 1.

## **VISITOR CENTER**

The crew is now done painting and the last item is the flooring. Public Works will need two full days to replace the flooring and is working with Visitor Center staff to schedule.

AGENDA INFORMATION MEMORANDUM  
NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY  
MEETING DATE: August 8, 2018

INITIATED BY: Josiah Masingale, Executive Director

INFORMATION:   X   ACTION:        OR DISCUSSION:         
=====

AGENDA ITEM: Executive Director’s Report for August 2018

SUMMARY:

- Staffing Report: Staff costs on budget. Working on TARP 2018 activities (Sustainability Workshop; Small Business Workshops; Women’s and Entrepreneurial Group).
- Board/Staff Conflict of Interest Annual Statement: Emailed to Board. Please complete and submit to Josiah.
- Board Committees (see attachment): Need to finalize ED/Infrastructure and the Constituent Relations committees. Reminder, only two board members allowed per committee.
- Noxious Weed Project – The DDA provided a Noxious Weed Workshop the morning of Saturday July 14<sup>th</sup> at Hub Ned with 12 participants. Volunteer Weed Pull had no participants but a team from Teens, Inc. pulled weeds at Chipeta Park Saturday July 28<sup>th</sup>. Peak Ecological Services doing remainder of contract work this month with all mechanical removal (no spraying).
- TARP 2018 Update: Will begin outreach activities to businesses on training and technical assistance needs in August. Will implement trainings, workshops and technical assistance visits in fall. Working on Sustainability Workshop with Boulder PACE.
- Public Art Project: DRAFT Contract created for property owner and artist (under review). Two properties identified, and Arts and Cultural Committee is finalizing details.
- Parking on Lakeview and Big Springs Drive: Working on obtaining additional quotes for the perspective Big Springs Drive and Lakeview Drive (separate projects) free parking projects. Received projects in separated quote from JVA. Met with Tebo Properties manager to coordinate potential project on Big Springs.
- Visitor Signage and Brochure: Possible installation of visitor sign posts in key areas of Town. Working on a DDA designed brochure that can be used at these signposts and can be updated internally as needed (and may be used for other marketing purposes).



- Food Truck Usage: Members of the proposed ad hoc Food Truck Committee have been introduced and provided secondary research material to review. The committee will propose next steps at a future board meeting.
- 2018 DDA Survey Results: 30 Total Responses to-date. Summary of responses shared with Board in preparation for Master Plan Prioritization Meeting. Below is a link to the survey... <https://www.surveymonkey.com/r/LQL6JNL>
- Master Plan Prioritization and Budgeting: Scheduled for first meeting on August 14<sup>th</sup> at Hub Ned (with a 2<sup>nd</sup> meeting if needed on August 20<sup>th</sup>). Will prioritize projects within the Master Plan overall and based on type (regular/reoccurring; one-time big; one-time small). Board members that cannot attend will be surveyed separately.
- 2019 Budgeting Process: Will begin budgeting process through Finance Committee in preparation for Board discussions and action items in October and November 2018.
- Attorney Services: Mill Levy Expiration Update and other items under attorney review.

RECOMMENDATIONS: N/A

FINANCIAL CONSIDERATIONS: N/A

ATTACHMENTS:

1. DRAFT NDDA Board Committee Descriptions and Members

**Nederland Downtown Development Authority  
Committee Descriptions and Members**

**Overview (from NDDA Board of Directors Bylaws Section 3.600 Committees):** The Board, by resolution adopted by a majority of the Board, may designate and appoint one or more committees, each of which shall consist of no more than two board members and may contain members of the public. Committees shall have and exercise such authority as shall be granted to them by such resolution; provided, however, such committee shall not have the power or authority to adopt an agreement of merger or consolidation or an agreement for the sale, lease or exchange of all, or substantially all of the Authority's property and assets, dissolve the Authority or amend the rules of the Authority. Any member of a committee may be removed by the board whenever in their judgment the best interests of the Authority shall be served by such removal.

**Executive Committee:** The Executive Committee shall be composed of the duly elected officers of the Authority and shall be led by the Board Chair. This committee shall be responsible for contract review; shall be involved in necessary legal matters; and shall lead Director annual appraisal.

**Executive Committee Members: Susan Schneider (Chair) and Brent Tregaskis (Vice-Chair)**

**Finance Committee:** The Finance Committee shall be led by the Board Treasurer. This committee shall review monthly financials ahead of board meeting; maintain fiscal controls and policies; shall lead the annual budget development; and lead audits/financial reviews.

**Finance Committee Members: Mandy Kneer (Treasurer) and Dallas Masters**

**Beautification Committee:** The Beautification Committee shall be led by the Director. The committee shall provide input into Authority beautification planning and implementation projects.

**Beautification Committee Members: Claudia Schaffler and Rea Orthner**

**Constituent Relations Committee:** The Constituent Relations Committee shall be led by the Director. The committee shall provide input into Authority constituent relations, including appropriate messaging and events planning for Authority projects.

**Constituent Relations Committee Members:**

**Economic Development and Infrastructure Committee:** The Economic Development and Infrastructure Committee shall be led by the Director. The committee shall provide input into Authority economic development and infrastructure projects.

**Economic Development and Infrastructure Committee Members: Brent Tregaskis/Steve Karowe and Mark Stringfellow**

**Arts and Cultural Committee:** The Arts and Culture Committee shall be led by the Director. The committee shall provide policy and procedures and recommendations for public/private art projects sponsored by the DDA, and shall provide input into Authority arts and cultural projects.

**Arts and Cultural Committee Members: Susan Schneider and Claudia Schaffler**

**Food Truck Usage Committee:** This ad-hoc committee shall be led by the Director. The ad-hoc committee shall provide input on recommendations to the Town Board of Trustees regarding Food Truck usage in the Downtown Development District.

**Food Truck Usage Committee Members: Claudia Schaffler and Rea Orthner**

**Lakeview/119 Intersection Committee:** This ad-hoc committee shall be led by the Director. The ad-hoc committee shall provide recommendations on improvements to the CO-119/72 and Lakeview Drive Intersection.

**Lakeview/119 Intersection Committee Members: Steve Karowe and Mark Stringfellow**

AGENDA INFORMATION MEMORANDUM  
NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY  
MEETING DATE: August 8, 2018

INITIATED BY: Josiah Masingale, Executive Director

INFORMATION:\_\_\_ ACTION:\_\_\_ OR DISCUSSION: X  
=====

AGENDA ITEM:

Lakeview Drive and CO-119/72 Intersection Discussion.

SUMMARY:

At the July 11, 2018 Board of Directors meeting it was determined that a special ad hoc committee should be created to address the intersection at Lakeview Drive and CO-119/72 intersection. This intersection has been a priority of the DDA for the past several years, with a 2014 quote and design provided by JVA (attached) and inclusion in the 2017 Master Plan (excerpts attached).

RECOMMENDATIONS:

Board discussion around this potential project, including next steps and guidance on early design preferences.

FINANCIAL CONSIDERATIONS: N/A

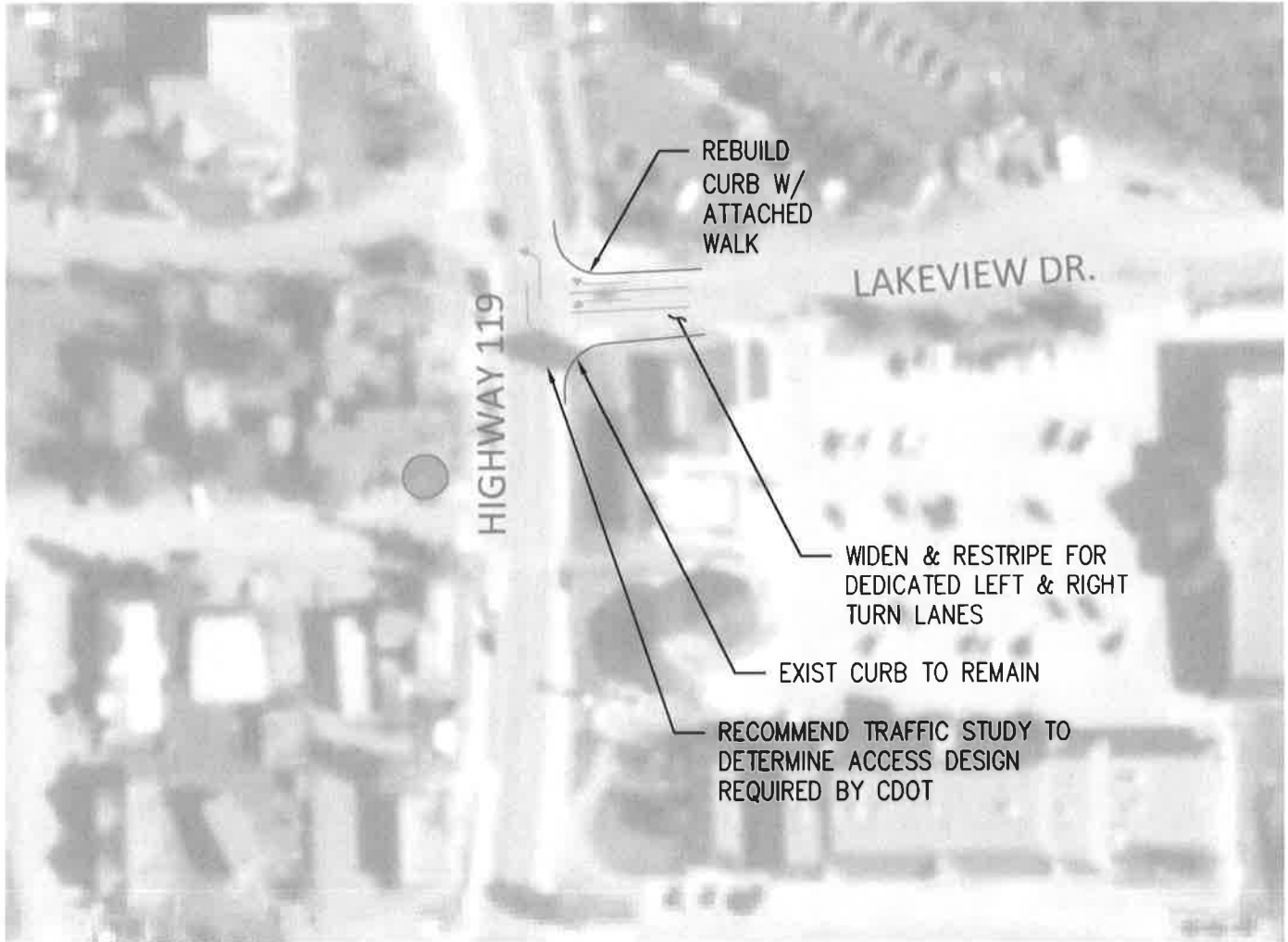
ATTACHMENT(S): Excerpt from JVA 2014 Quote Sheet; Excerpts from 2017 DDA Master Plan



**JVA, Incorporated**  
 1319 Spruce Street  
 Boulder, CO 80302  
 Ph: 303.444.1951  
 Fax: 303.444.1957

**Job Name: Town of Nederland**  
**Master Infrastructure Plan**  
**Job Number: 2122c**  
**Date: 8/14/2014**  
**By: CHR**

Project Description	Quantity	Units	Unit Cost	Total
<b>Lakeview Drive Access / Turn Lane Improvements</b>				
Demo Existing Misc. Structures/Clear & Grub	1	LS	\$10,000	\$10,000
Export Excess Cut	2,000	CY	\$12	\$24,000
Grading Onsite	12 900	SF	\$1.00	\$12,900
Traffic Control	1	LS	\$10,000	\$10,000
42" CMP Culvert	125	LF	\$65	\$8,200
42" Flared End Section	4	EA	\$2,500	\$10,000
Bioswale (Incl. Landscaping/Perf Pipe/Filter Fabr/Soil Media	700	LF	\$25	\$17,500
Riprap Type M	500	CY	\$75	\$37,500
Traffic Study	1	LS	\$5,000	\$5,000
Erosion Control	1	LS	\$5,000	\$5,000
			<b>Subtotal</b>	<b>\$140,100</b>
			Contingency (20%)	\$29,000
			Contractor's OH&P (15%)	\$22,000
			Mobilization (10%)	\$15,000
			Long Term Maintenance (20%)	\$29,000
			Professional Engineering, Geotech and Surveying Fees (15%)	\$22,000
			<b>Project Total</b>	<b>\$258,000</b>
<b>Emergency Access at Middle Boulder Creek</b>				
Demo Existing Misc. Structures/Clear & Grub	1	LS	\$2,500	\$2,500
Grading Onsite	10,000	SF	\$1.00	\$10,000
Cut, Fill and Compact Onsite Material	300	CY	\$2.25	\$700
Import Structural Fill	500	CY	\$8	\$4,000
Traffic Control	1	LS	\$5,000	\$5,000
Road Base - 6"	250	TONS	\$15	\$3,800
Concrete bridge, abutments, etc	1	LS	\$150,000	\$150,000
Riprap Type M	500	CY	\$75	\$37,500
Erosion Control	1	LS	\$10,000	\$10,000
			<b>Subtotal</b>	<b>\$223,500</b>
			Contingency (20%)	\$45,000
			Contractor's OH&P (15%)	\$34,000
			Mobilization (10%)	\$23,000
			Professional Engineering, Geotech and Surveying Fees (15%)	\$34,000
			<b>Project Total</b>	<b>\$360,000</b>
<b>HWY 119 to Middle Boulder Creek Stormwater Management &amp; Water Quality</b>				
Demo Existing Misc. Structures/Clear & Grub	1	LS	\$10,000	\$10,000
Export Excess Cut	1,500	CY	\$12	\$18,000
Traffic Control	1	LS	\$5,000	\$5,000
42" CMP Culvert	60	LF	\$65	\$3,900
42" Flared End Section	2	EA	\$2,500	\$5,000
36" CMP Culvert	55	LF	\$45	\$2,500
36" CMP Flared End Section	2	EA	\$2,200	\$4,400
Riprap Stilling Basin	1	EA	\$3,000	\$3,000
Bioswale (Incl. Landscaping/Perf Pipe/Filter Fabr/Soil Media	505	LF	\$25	\$12,700
Riprap Type M	20	CY	\$75	\$1,500
Erosion Control	1	LS	\$7,500	\$7,500
			<b>Subtotal</b>	<b>\$73,500</b>
			Contingency (20%)	\$15,000
			Contractor's OH&P (15%)	\$12,000
			Mobilization (10%)	\$8,000
			Professional Engineering, Geotech and Surveying Fees (15%)	\$12,000
			<b>Project Total</b>	<b>\$121,000</b>

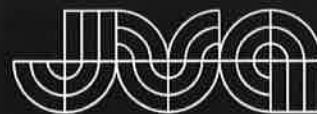


**DOWNTOWN DISTRICT**



**LAKEVIEW DR  
ACCESS/TURN LANE IMPROVEMENTS**

TOWN OF NEDERLAND MIP 08/15/2014



CONSULTING ENGINEERS Meeting Packet

JVA, Incorporated  
1319 Spruce Street  
Boulder, CO 80302  
Phone: 303.444.1951  
E-mail: info@jvajva.com

The Highway 72 South commercial area comprises properties on the south side of Middle Boulder Creek, extending to Big Springs Drive. The centerpiece of the Highway 72 South Commercial area is the Caribou Village Shopping Center, which includes an extensive mix of businesses, attractions and services. While the First Street Commercial Area represents a more traditional downtown corridor, the Highway 72 South Commercial Area is, essentially, Nederland’s commercial center. It also is worth noting that the Highway 72 South Commercial Area is currently served by two bus stops along the regional N route.

### Issues to be addressed

Through its planning process, the NDDA has identified the following issues to be addressed in the Highway 72 South commercial area:

1. Traffic congestion (specifically at Hwy. 72 and Lakeview Dr. intersection)
2. Lack of developed parking
3. Connectivity with First Street Commercial Area
4. Connectivity with surrounding residential neighborhoods (Old Town, Big Springs, Lakeview).

### Proposed Improvements

The Highway 72 South Commercial Area is particularly prone to vehicular congestion and vehicle and pedestrian dangers; therefore, the NDDA has prioritized improvements in traffic flow, better accommodation for pedestrians, and parking in this area. In order to improve the flow, ease navigation, and accommodate the needs for additional parking during events and peak tourism, the following improvements are proposed:

1. Funding a traffic and parking assessment to guide future improvements
2. A reconstruction of the Highway 72 and Lakeview Drive intersection
3. Improving on-street parking at Lakeview Drive and Big Springs Drive
4. Construction of new pedestrian pathways to create a “downtown loop.”

One of the greatest challenges Nederland faces is the fact that there is only one, single thoroughfare through the center of town. This challenge is further complicated as the single passage is a state-owned highway with an estimated annual traffic count exceeding one million vehicles. The NDDA must assume a leadership role in collaborating with the Colorado Department of Transportation in order to spur needed improvements in traffic flow. The traffic congestion at Lakeview Drive and the highway through town affects the entire downtown district. By reconstructing this key intersection, the NDDA aims to not only improve traffic flow, but also to enhance wayfinding through improved signage, while simultaneously providing better passage for pedestrians. Commissioning a traffic and parking assessment will be a necessary first step in planning improvements to circulation in the area.

### Project Concepts

Presently, on-street parking occurs on both Lakeview Drive and Big Springs Drive, but without clear demarcation, this parking remains largely informal and underutilized. Using the traffic and parking assessment as a guide, the NDDA can fund improvements, such as creating formal spaces to ensure that the parking in these areas maximizes available space. The NDDA also will consider expanding sidewalks or constructing multi-modal pathways in both areas. These pathways would provide a vital connection between Chipeta Park and the Highway 72 South Commercial Area, and access to RTD bus stops.

The conceptual rendering below was prepared by a team from the Center for Community Development at the University of Colorado-Denver. It shows the addition of right turn lanes at the intersection of Lakeview Drive and Highway 72. Currently, this intersection is a major source of traffic congestion, especially during weekends and peak tourist season. This design accounts for special limitations while preserving pedestrian walkways. Additional concepts will be explored with a professional traffic study of the area.



## Jefferson Street Commercial Area

This commercial area encompasses properties between West Third Street to the north and West First Street to the south, extending from North Jefferson Street on the east, to the RTD Park and Ride on the west end. This is the least densely populated commercial area in the downtown district; however, it offers ample space for parking and infill development. In addition, the Jefferson Street Commercial Area serves as the western gateway to downtown, specifically for traffic coming from the north on Highway 72 from Ward, Lyons and Estes Park, and also for visitors arriving in Nederland on the regional RTD "N" bus.

### Issues to be addressed

The NDDA has identified the following issues to be addressed in this area:

1. Poor road conditions and drainage (storm water management)
2. Lack of developed parking
3. "Gateway" improvements.

### Proposed Improvements

1. Plans for mitigation identified in the Master Infrastructure Plan (MIP) were used in NedPeds construction
2. Identify underutilized public and private lots, incentivize improvements
3. Create a gateway area with wayfinding signage and information.

# Action Matrix

NDDA Partnership Matrix		EXTERNAL PARTNERS							
		BoCo	CDOT	DCI	DOLA	CCD	OEDIT	CDPHE	XCEL
<b>PROJECTS &amp; PROGRAMS</b>	Business Loading Zone	--	--	--	--	P	--	--	--
	1 <sup>st</sup> Street Sidewalks	--	P/I/CS	--	--	P	--	--	--
	Commercial Development	P/CS	--	P	P/CS	--	P/CS	--	--
	Burying Utility Lines	--	--	--	--	--	--	P/CS	P/I/CS
	Traffic Study	P/I/CS	P/I/CS	P/I	P/I	P	P/CS	--	--
	Lakeview/72 Intersection	--	--	--	--	P	--	--	--
	On-street parking (Lakeview & Big Springs)	--	P/I/CS	--	--	P	--	--	--
	Parking Lot Improvements (Jefferson St. Area)	--	--	--	--	--	--	--	--
	Second Bridge	--	P/I/CS	--	--	P	P/I/CS	--	--
	Riverwalk	--	--	--	--	P	P/I/CS	P	--
	Amphitheater	P/I/CS	--	--	--	P	--	--	--
	Beautification Programs	--	--	P	--	P	--	--	--
	Circulation Programs	--	P/I/CS	P/I	P	P	P/CS	--	--
	Event Programs	--	--	P/I	--	--	P/CS	--	--
Business Services	P/I/CS	--	P/I	P/I	--	P/I/CS	--	--	



Community feedback regarding a Riverwalk:

- “Development of a river walk with shops, park benches, bike paths, walking paths, a band shell for outdoor concerts in the park”
- “Creation of a river walk area along the creek.”
- “Creek walkway with shops and restaurants”
- “More shopping and creek walking opportunities”
- “...river walk would be amazing.”
- “Creek walkway with shops!”

Community feedback regarding Lakeview/Hwy. 72 intersection:

- “A stop light at the intersection in front of the bank.”
- “The intersection where the Shopping Center exit and the Bank/ Hardware exit coincide across the highway.”
- “Better/safer traffic control (4-way STOP signs on Hwy 119 and entrances to B & F and Bank /ACE Hardware).”
- “Fix the roads/entrance at the bank and the shopping center”
- “Getting out of the B&F parking lot or Ace is a NIGHTMARE”
- “Better flow of traffic between B&F Shopping Center and ACE”

Community feedback regarding the Barker Meadow Amphitheater:

- “Local performance space at Barker Res!”
- “Live local music at farmers market style events at the performance space at Barker Res”
- “Complete the performance space at the reservoir”
- “The town needs a performance space for events”
- “Amphitheater for the town for various events.”

Community feedback regarding beautification and community aesthetics:

- “Clean it up...it looks really outdated and dirty.”
- “Clean up. Fix potholes. Landscape and maintain public spaces”
- “Improved physical condition of the overall district, e.g. roadways, trails, cleanliness”
- “Make it pretty. It often looks like we don't care and don't want to care”
- “Look at the beauty of this place! Let's take down the power lines, sheds and propane tanks to make this town more beautiful and inviting”
- “Conservation of natural areas with nature trails”
- “We have beautiful surrounding scenery”
- “keep it rustic and unique”

Community feedback on parking and traffic flow:

- “Improve traffic flow across Peak to Peak between the two sides of town connected by the bridge—there's now only the single thruway for travel across the creek, and traffic grinds to a halt along Peak to Peak around events or at peak flow times”
- “As long as cars, trucks and motorcycles dominate the space there will not be a true sense of community in the downtown area. Route through-traffic differently. Then tie the three different areas together with true pedestrian-friendly paths, roads, walkways.”

AGENDA INFORMATION MEMORANDUM  
NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY  
MEETING DATE: August 8, 2018

INITIATED BY: Josiah Masingale, Executive Director

INFORMATION:\_\_\_ ACTION:\_\_\_ OR DISCUSSION: X  
=====

AGENDA ITEM:

Visitor Center and 1<sup>st</sup> Street Paid Parking Discussion.

SUMMARY:

Parking in all areas of downtown was prioritized in the 2017 Master Plan, with potential paid parking along the 1<sup>st</sup> corridor as a recommended project to consider (see attached excerpts from 2017 DDA Master Plan). Non-turnover of parked vehicles in the Visitor Center Parking Lot and along 1<sup>st</sup> Street is considered by some DDA constituents to be a major issue that the DDA should address; any such project should take into consideration feedback from the local business owners.

RECOMMENDATIONS:

Board discussion around this potential project, including next steps.

FINANCIAL CONSIDERATIONS: N/A

ATTACHMENT(S): Excerpts from 2017 DDA Master Plan; Chapter 1 - Donald Shoup, The High Cost of Free Parking, Chicago: Planners Press, 2005 and 2011 (download at <http://www.shoupdogg.com/publications/>).

## First Street Commercial Area



The First Street Commercial Area extends from the Visitor Center parking lot on the west end of First Street to Snyder Street on the east end of First Street. Middle Boulder Creek flows adjacent to First Street to the south. The First Street Commercial Area contains a blend of unique businesses including bars, cafés, gift shops, and a food co-op.

The Nederland Town Hall and Visitor Center are also located in the First Street Commercial Area. Through planned improvements, the NDDA seeks to establish First Street as the "Main Street" of downtown, creating a walkable corridor between the RTD Park and Ride and First Street and Middle Boulder Creek.

### Issues to be addressed

The following issues have been identified for the First Street Commercial Area, based upon NDDA's community outreach, and responses gathered in the 2015 Economic Development Survey:

1. Limited parking
2. Poorly maintained buildings
3. Poor walkability
4. Lack of commercial and retail space
5. Inadequate loading zones for businesses in the area.

### Proposed Improvements

1. The NDDA proposed the following capital projects and infrastructure improvements:
2. Construction of a new business loading zone
3. Expansion of sidewalks and crosswalks
4. Development of new commercial and mixed-use properties
5. Bury utility lines.

fund additional sidewalk installations. The primary challenge, though, will be providing sidewalks at the expense of parking spaces. First Street is narrow, leaving little space for both travel patterns.

The Parking Study of 2009, and discussions during the development of this plan, lead the NDDA to determine that under-utilized parking lots outside the downtown core could be used to compensate for limited parking in commercial areas. External lots will relieve traffic congestion in the downtown core while still providing visitors and residents easy access to businesses. **The NDDA also could consider a pilot program for timed and metered parking along First Street to increase vehicle turnover and encourage parking in external areas.**



This conceptual rendering offers a glimpse of First Street with buried utility lines. With the substantial challenges that go with undergrounding, it may be more of a long-term goal. If it is made a priority, then any planning for First Street improvements must take undergrounding into consideration. Funds available through Xcel and other partners can be brought into play for this project. Addressing the utility line issue as part of larger First Street issues that include loading zones, parking, and sidewalks, the NDDA can create a plan for addressing everything and ensuring a more comprehensive solution.

## Highway 72 South Commercial Area



## Community Feedback

The Mayor's Economic Development Task Force administered the Nederland Area Economic Development Survey in the summer of 2015 to gauge consumer behaviors and local preferences for economic development objectives and strategies. A total of 285 respondents participated in the survey, with a vast majority residing in Nederland and the surrounding area. The results of the survey were compiled in a report, which assisted the Economic Development Task Force in determining recommendations to present to the Nederland Board of Trustees.

The survey was largely composed of open-ended questions, generating more than 3,000 unique comments. While the survey reflected diverse opinions, several notable trends did emerge. This appendix contains comments excerpted from the survey that embody the most prominent themes. A full version of the survey, results and a report from the Task Force can be found at [nederlanddowntown.org](http://nederlanddowntown.org).

### Community feedback regarding First Street improvements:

- "First street is pretty narrow when crowded and parking can be scarce."
- "...obtain more grant money for improvements more commercial development in the downtown area particularly First St.
- Make 1st street a destination, not just a few stores.
- "First street is quite narrow when there is a lot of traffic/delivery trucks/tourists."
- "First Street could be cleaned up a bit."
- "change the first street block, no more tuff sheds and motorcycle parking, that block is perfect for multi-use buildings (underground parking, retail, office spaces, and lofts for living)."
- "make 1st Street for bikes and peds only. Car-free downtown core."
- "Make 1st street a walking mall with a clearer connection to shopping center."
- "More free parking for E 1st Street"
- "I would like Sidewalk down 1st street to the reservoir"
- "more continuous store front on first st"

### Community feedback regarding the Second Bridge at Middle Boulder Creek

- "Second bridge across the creek to facilitate traffic flow, and aid in best traffic control, Bridge at Snider Street is best"
- "I would like to see another bridge -or a wider bridge for car traffic."
- "Build a second auto bridge connecting the shopping center and the First St. commercial district"
- "Bridge from Snyder Street to Conger Street making business loop"
- "2nd bridge connecting north and south side of Town."
- "Keep us simple-make another bridge across the creek"

Community feedback regarding a Riverwalk:

- “Development of a river walk with shops, park benches, bike paths, walking paths, a band shell for outdoor concerts in the park”
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- “Make it pretty. It often looks like we don't care and don't want to care”
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- “As long as cars, trucks and motorcycles dominate the space there will not be a true sense of community in the downtown area. Route through-traffic differently. Then tie the three different areas together with true pedestrian-friendly paths, roads, walkways.”

- “Parking meters to turn over traffic and eliminate employees from taking up all the parking.”
- “Better, more clearly marked, ample, obvious, free parking”
- “BETTER SIGNAGE (where the heck is the carousel? The Skatepark?)”
- “developing entire downtown with signage and easy walking throughout.”

Community feedback on events and programming:

- “family oriented, less marijuana based. Outdoor/athletically focused”
- “Outdoor activity festivals...cycling, hiking, skiing”
- “First Friday events town-wide, more art shows in the summer”
- “monthly music and arts event and make sure we know about it!”
- “Biking and running events, art festival, farmers market”
- “local farmer's market style, with art, craftsmanship”
- “monthly event that was family friendly and free to attend”
- “Outdoor film series; better or more frequent movie times”
- “historical and interactive things for all ages”
- “Educational events free/cheap for residents, like a food growing expo”

Community feedback regarding new business development, existing business improvement and business district promotion:

- “1. Promote year-round tourism 2. Encourage businesses (non-retail, non-restaurant) that hire locals 3. Offer a properly funded/staffed Chamber/small business development and tourism bureau 4. Town budget for business/tourism promotion 5. Improved (centralized) communications systems in Town and to outsiders”
- “Town partnership, economic development tools/mentoring programs, identification and development of commercial areas/incubators”
- “I would like to see Nederland be more welcoming to small businesses without overwhelming paperwork and fees”
- “More local business opportunities. More real estate incentives to help people buy property and fix it up”
- “Attract and support start-ups, investors and incubators to help fuel new business ideas and innovation at 8,000 feet.”
- “Target specifically areas that Nederland lacks. For example, we don't have a home store. Do what it takes to make it attractive for one to located here -- tax breaks good location.”
- “Dollars for small business to renovate existing spaces?”
- “I would like to see the town offer promotion, encouragement, incentive, campaigning to buy local.”

## CHAPTER

**1**

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# The Twenty-first Century Parking Problem

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*You don't know what you've got till it's gone. They paved paradise and put up a parking lot.*

—JONI MITCHELL

Children first learn about free parking when they play Monopoly. The chance of landing on free parking is low, about the same as the chance of going to jail. Monopoly misleads its players on this score, however, because parking is free for 99 percent of all automobile trips in the U.S.<sup>1</sup> This book will argue that another kind of deception is also at play on the Monopoly board because in the real world, there is no such thing as “free” parking. The cost of parking is hidden in higher prices for everything else. In addition to the monetary cost, which is enormous, free parking imposes many other hidden costs on cities, the economy, and the environment.

Why is most parking free to the driver? When only the rich owned cars at the beginning of the twentieth century, motorists simply parked their new cars at the curb where they had formerly tethered their horses and carriages. But when car ownership grew rapidly during the 1910s and 1920s, the parking problem developed. Curb parking remained free (the parking meter was not invented until 1935), but there were no longer enough spaces for everyone to park whenever and wherever they wanted. Drivers circled in vain looking for a vacant curb space, and their cars congested traffic. In the 1930s, cities began to require off-street



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parking in their zoning ordinances to deal with the parking shortage, and the results were miraculous. One delighted mayor reported:

We consider zoning for parking our greatest advance.... It is working out exceptionally well, far better than we had expected. In brief, it calls for all new buildings to make a provision for parking space required for its own uses.<sup>2</sup>

This sounds like a good idea. In one sense, it *was* a good idea. Requiring all new buildings to provide ample on-site parking did solve one problem—the shortage of free curbside parking—but the solution soon created new problems. Urban planners began to assume that most people would travel everywhere by car, park on-site while they worked, shopped, or dined, and then drive on to their next destination. Cities began to require each site to provide its own parking lot big enough to satisfy the expected peak demand for free parking, and most commercial buildings are now required to provide a parking lot bigger than the building itself. The required parking lot at a restaurant, for example, usually occupies at least three times as much land as the restaurant itself. Off-street parking requirements encourage everyone to drive wherever they go because they know they can usually park free when they get there: 87 percent of all trips in the U.S. are now made by personal motor vehicles, and only 1.5 percent by public transit.<sup>3</sup>

If drivers don't pay for parking, who does? Everyone does, even if they don't drive. Initially the developer pays for the required parking, but soon the tenants do, and then their customers, and so on, until the cost of parking has diffused everywhere in the economy. When we shop in a store, eat in a restaurant, or see a movie, we pay for parking indirectly because its cost is included in the prices of merchandise, meals, and theater tickets. We unknowingly support our cars with almost every commercial transaction we make because a small share of the money changing hands pays for parking. Residents pay for parking through higher prices for housing. Businesses pay for parking through higher rents for their premises. Shoppers pay for parking through higher prices for everything they buy. We don't pay for parking in our role as motorists, but in all our other roles—as consumers, investors, workers, residents, and taxpayers—we pay a high price. Even people who don't own a car have to pay for “free” parking.

Off-street parking requirements collectivize the cost of parking because they allow everyone to park free at everyone else's expense. When the cost of parking is hidden in the prices of other goods and services, no one can pay less for parking by using less of it. Bundling the cost of parking into higher prices for everything else skews travel choices toward cars

*The Twenty-first Century Parking Problem* 3

and away from public transit, cycling, and walking. Off-street parking requirements thus change the way we build our cities, the way we travel, and how much energy we consume. All the required parking spaces use up land, spread the city out, and increase travel distances. Free parking also reduces the price of driving wherever we want to go, so the increased travel distances combined with the reduced price of driving make cars the obvious choice for most trips. Because highway transportation accounts for half of U.S. oil consumption, which is a quarter of the world's oil production, American motor vehicles now consume one-eighth of the world's oil. Free parking helps to explain this extreme automobile dependence, rapid urban sprawl, and extravagant energy use.<sup>4</sup>

Parking affects both transportation and land use, but its effects are often overlooked or misunderstood. Many people see urban problems—congestion, pollution, decay, and sprawl—but even the most ferocious critics of cars often fail to connect these problems with parking policies. Consider the apocalyptic titles of these jeremiads against the car: *Autokind vs. Mankind*, *Car Mania*, *Dead End*, *The Pavers and the Paved*, and *Road to Ruin*.<sup>5</sup> Off-street parking requirements contribute to the automobile-and-asphalt dominance the authors criticize, but none of the books even mentions parking. Parking is a blind spot in most studies of automobile transportation. Whether polemical or analytical, most books about cars and cities ignore the role that parking plays in both transportation and land use.

Journalists occasionally write about parking, usually with a critical tone. Here is *New York Times* columnist David Brooks's description of a shopper's trip to the mall in suburban Sprinkler City:

He steps out into the parking lot and is momentarily blinded by sun bouncing off the hardtop. The parking lot is so massive that he can barely see the Wal-Mart, the Bed Bath & Beyond, or the area-code-sized Old Navy glistening through the heat there on the other side. This mall is...so vast that shoppers have to drive from store to store, cutting diagonally through the infinity of empty parking spaces in between...there are archipelagoes of them—one massive parking lot after another surrounded by huge boxes that often have racing stripes around the middle to break the monotony of the windowless exterior walls.<sup>6</sup>

Brooks describes a scene that is all too real, and many people concerned about sprawl decry the expanses of land used by big-box retail. But few people realize that cities *require* the developers of these "dark Satanic malls" to provide the massive parking lots that remain nearly empty much of the time.<sup>7</sup>

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Because I want to call attention to our mistaken parking policies, I toyed with alarmist titles like *Aparkalypse Now* or *Parkageddon*. I eventually settled on the more sober *The High Cost of Free Parking* because this oxymoron captures the conflict between free parking and its hidden cost. In this book I show that “free” parking distorts transportation choices, debases urban design, damages the economy, and degrades the environment. I argue that American cities have made devastating mistakes with their parking policies, and I propose reforms designed to undo the damage caused by nearly a century of bad planning.

### THE CAR EXPLOSION

Coming to grips with the parking problem is essential because the rest of the world is poised to repeat America’s mistakes. America adopted the car much faster and to a far greater extent than other nations, and many factors help to explain this phenomenon—abundant land, rapid population growth, low fuel prices, and high incomes, among others. Abundant free parking also contributes to our high demand for cars because it greatly reduces the cost of car ownership. And because we own so many cars, we need lots of land to park them. We can speculate about the amount of land the whole world will need for parking if other nations ever acquire as many cars as Americans owned at the end of the twentieth century.

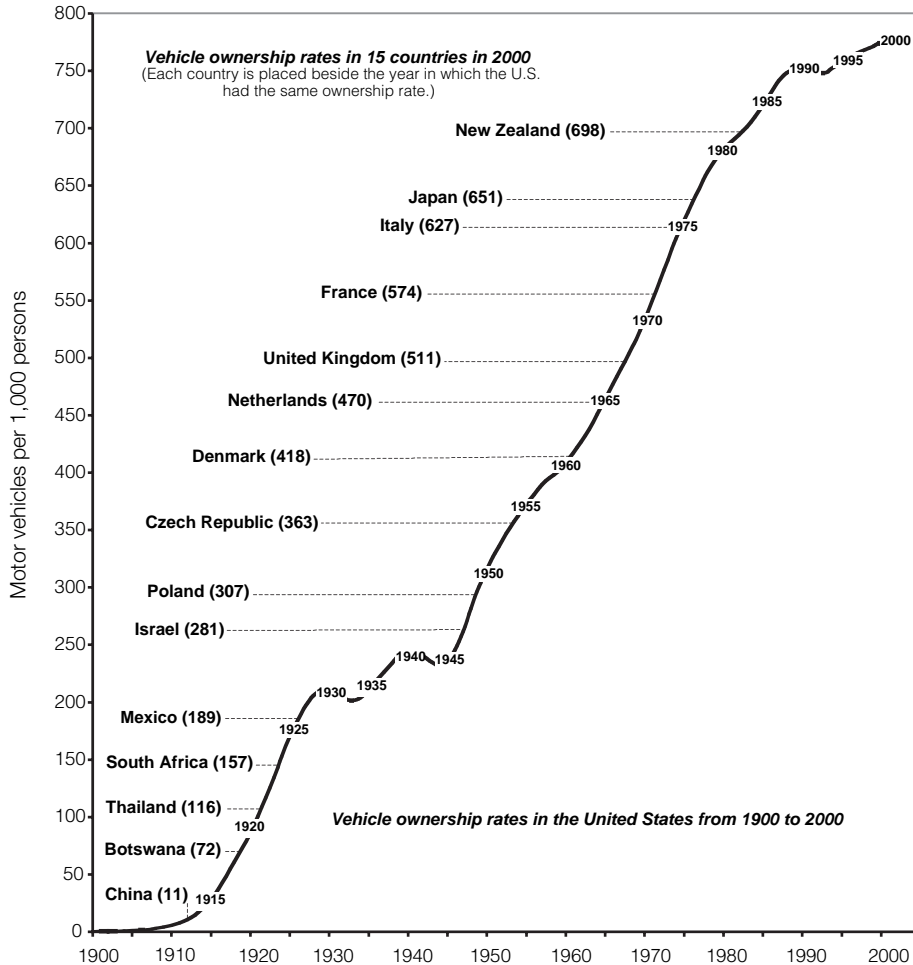
The first American gasoline car was sold in February 1896.<sup>8</sup> By 2000, Americans owned 771 motor vehicles per 1,000 persons. Figure 1-1 shows the U.S. vehicle-ownership rates (motor vehicles per 1,000 persons) from 1900 to 2000. Apart from dips during the Depression, World War II, and the early 1990s, ownership rose rapidly. Fifteen other nations’ vehicle-ownership rates in 2000 are placed in the graph beside the year in which the U.S. had the same rate. In 2000, France had the same vehicle-ownership rate as the U.S. in 1972, Denmark the same as the U.S. in 1961, and China the same as the U.S. in 1912.<sup>9</sup>

China is now the world’s fourth-largest market for new cars (after the U.S., Japan, and Germany), but the U.S. still *added* more than twice as many vehicles during the 1990s (29 million) as China owned in 2000 (13 million). Other nations are, however, gaining on the U.S. Since 1950 the vehicle population has grown more than twice as fast outside the U.S. as inside (see Figure 1-2).<sup>10</sup> And yet, taken together, in 2000 the world outside the U.S. owned only 89 vehicles per 1,000 persons—the U.S. rate in 1920. But just as the U.S. vehicle-ownership rate doubled in the five years after 1920, rapid growth may also occur soon in other countries.

The 6.1 billion people on earth in 2000 owned 735 million vehicles. Imagine what would happen if all the countries on earth ever achieve the

The Twenty-first Century Parking Problem 5

Figure 1-1. Vehicle Ownership Rates: The United States from 1900 to 2000 and 15 Other Countries in 2000 (Motor vehicles per 1,000 persons)

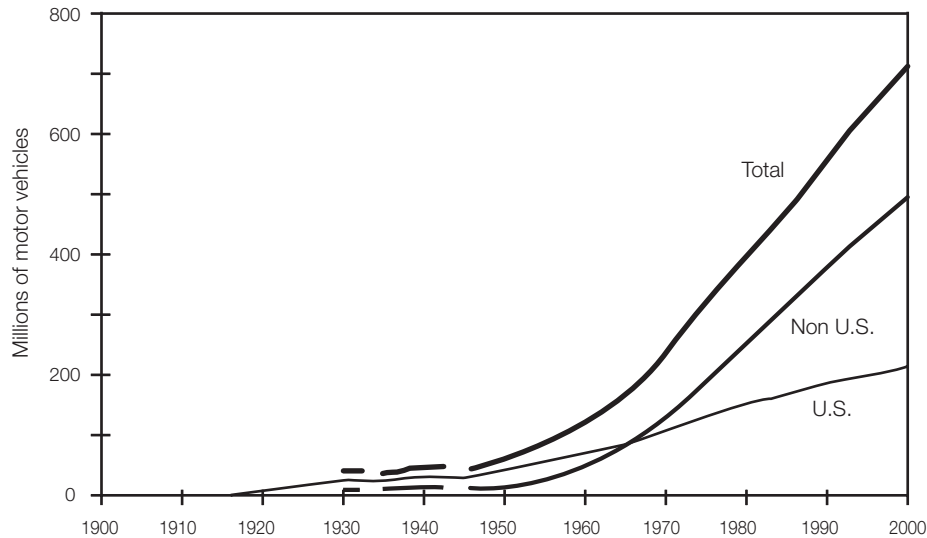


Source: Tables H-1 and H-2 in Appendix H.

same vehicle-ownership rate as the U.S. in 2000: there would be 4.7 billion vehicles even if the human population does not increase.<sup>11</sup> A parking lot big enough to hold 4.7 billion cars would occupy an area about the size of England or Greece.<sup>12</sup> If there are four parking spaces per car (one at home, and three more at other destinations), 4.7 billion cars would require 19 billion parking spaces, which amounts to a parking lot about the size of France or Spain.<sup>13</sup> More cars would also require more land for roads, gas stations, used car dealers, automobile graveyards, and tire dumps.

## 6 The High Cost of Free Parking

**Figure 1-2. Number of Motor Vehicles on Earth**

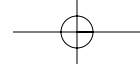


Source: Table H-1 in Appendix H.

If the past trends in vehicle ownership continue, the world will have more than 4.7 billion cars well before the end of the twenty-first century. Even if the vehicle population grows by only 2 percent a year, it will increase from 735 million in 2000 to 5 billion in 2100. Can the world supply all the fuel needed to power 5 billion cars? Will humans be able to breathe the fumes coming out of 5 billion exhaust pipes? And where will 5 billion cars park?

These questions are not meant to sound alarmist. A simple projection is often a poor forecast because technology and policy can change. For example, horse-drawn carriages befouled cities a century ago. In New York City in 1900, horses deposited 2.5 million pounds of manure on the streets every day.<sup>14</sup> Projected growth in transportation demand made a public health disaster seem inevitable, but then the horseless carriage solved that problem. Now, horseless carriages create their own problems, but new solutions will arrive. Improved technology will increase fuel efficiency and reduce pollution emissions, but technology alone is unlikely to solve the parking problem. Regardless of how fuel efficient our cars are or how little pollution they emit, we will always need somewhere to park them, and the average car spends about 95 percent of its life parked.<sup>15</sup>

This book proposes new policies to solve our parking problems. After all, we don't want to see France or Spain paved for a parking lot. Before proposing any solutions, however, I will first explain what I believe creates most parking problems: *the treatment of curb parking as a commons*.



## *The Twenty-first Century Parking Problem 7*

### THE “COMMONS” PROBLEM

Free curb parking presents a classic “commons” problem. Land that belongs to the community, and is freely available to everyone without charge, is called a commons. City life requires common ownership of much land (such as streets, sidewalks, and parks), but the neglect and mismanagement of common property can create serious problems. Aristotle observed:

What is common to the greatest number has the least care bestowed upon it. Every one thinks chiefly of his own, hardly at all of the common interest.<sup>16</sup>

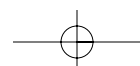
The archetypical commons problem occurs on village land that is freely available to all members of a community for grazing their animals. This open-access arrangement works well in a small community with plenty of grass to go around. But when the community grows, so does the number of animals, and eventually, although it may take a while to notice it, the land is overrun and overgrazed. Harvard economist Thomas Schelling describes the problem:

The commons has come to serve as a paradigm for situations in which people so impinge on each other in pursuing their own interests that collectively they might be better off if they could be restrained, but no one gains individually by self-restraint. Common pasture in a village of England or Colonial New England was not only common property of the villagers but unrestrictedly available to their animals. The more cattle (or sheep or whatever) that were put to graze on the common, the less forage there was for each animal—and more of it got trampled—but as long as there was any profit in grazing one’s animal on the common, villagers were motivated to do so.<sup>17</sup>

Free curb parking is an asphalt commons: just as cattle compete in their search for scarce grass, drivers compete in their search for scarce curb parking spaces. Drivers waste time and fuel, congest traffic, and pollute the air while cruising for curb parking, and after finding a space they have no incentive to economize on how long they park.

Where many people want to use a scarce public resource, self-restraint does not produce any individual reward. Free curb parking thus presents the perfect commons problem—no one owns it, and everyone can use it. In his famous essay on the “tragedy of the commons,” Garrett Hardin used curb parking to illustrate the problem he was describing:

During the Christmas shopping season the parking meters downtown were covered with plastic bags that bore tags reading: “Do not open until after Christmas. Free parking courtesy of the mayor and city council.” In other



## 8 *The High Cost of Free Parking*

words, facing the prospect of an increased demand for already scarce space, the city fathers reinstated the system of the commons.<sup>18</sup>

Some cities continue to gift wrap their parking meters in December, and they give motorists a commons problem for Christmas. Although voters may thank their mayor and city council for free parking at the time of peak demand, vacant spaces become even harder to find. Drivers circle the block searching for a curb space, and when they find one they occupy it longer than they would if they paid to park. What makes sense for an individual driver is bad for the community as a whole.

Although urban planners have not ignored the commons problem created by free curb parking, they have misdiagnosed it. Planners have identified the source of the problem not as the city's failure to charge market prices for curb parking, but as the market's failure to supply enough off-street parking. Cities therefore require ample on-site parking for all new buildings. The logic behind this policy is simple: development may increase the demand for parking, but cities can require developers to provide enough on-site spaces to satisfy this new demand. If a new building increases the demand for parking by 100 spaces, for example, cities can require it to provide 100 new spaces so that competition for the scarce curb parking doesn't increase. Curb parking remains a commons, and cities require enough off-street parking to satisfy the increased demand.

A major flaw in this solution, however, is the way planners estimate demand: they do not estimate it as a function of price. Instead, they make the unstated (perhaps even unconscious) assumption that all parking is free. They estimate the demand for *free* parking and then require enough spaces to meet this demand. In effect, urban planners treat free parking as an entitlement, and they consider the resulting demand for free parking a "need" that must be met. Off-street parking requirements create an abundance of parking spaces, driving the market price of parking to zero, which explains why drivers can park free for 99 percent of their trips. Off-street parking requirements are a fertility drug for cars.

Most markets depend on prices to allocate resources—so much so that it's hard to imagine they could operate in any other way. Nevertheless, cities have tried to manage parking almost entirely without prices. To see the absurdity of this policy, look at it from a new perspective. Cities require off-street parking because the market supposedly fails to provide enough of it. But the market fails to provide many things at a price everyone can afford. For instance, it fails to provide affordable housing for many families. Advocates for affordable housing usually find themselves in an uphill battle, but without a second thought cities have imposed requirements to ensure affordable parking. Rather than charge fair-mar-

ket prices for on-street parking, cities insist on ample off-street parking for every land use. As a result, most of us drive almost everywhere we go.

### **SKEWED TRAVEL CHOICES**

Every transport system has three elements: vehicles, rights-of-way, and terminal capacity. Rail transport, for example, has trains, tracks, and stations. Sea transport has ships, oceans, and seaports. Air transport has planes, the sky, and airports. Automobile transport has cars, roads, and parking spaces. Two aspects of its terminal capacity set automobile transport apart from all other transport systems. First, automobile transport requires enormous terminal capacity—it is land-hungry—because there are so many cars and several parking spaces for each one. Second, motorists park free for 99 percent of their trips because off-street parking requirements remove the cost of automobile terminal capacity from the transport sector and shift it everywhere else in the economy. Free parking helps explain the enormous demand for automobile terminal capacity. By shifting the cost of parking from drivers to everyone else, off-street parking requirements provide a huge subsidy to motorists, and thus increase the demand for cars, parking spaces, and vehicle travel.

For a typical trip *to* work, the cost of parking *at* work (if drivers pay for it) is over half the total out-of-pocket cost of automobile commuting.<sup>19</sup> But most drivers do *not* pay for parking, or at least not in their role as drivers. Because a cost-recovery price for parking is such a large share of the total cost of automobile travel, “free” parking seriously skews travel choices toward solo driving and away from other forms of travel that require less terminal capacity: public transit, carpooling, bicycling, and—the extreme case—walking, which requires shoes and sidewalks, but no terminal capacity at all. Free parking gives the largest subsidy per mile to the shortest vehicle trips—the ones that, without a parking subsidy, we would most likely make by walking, cycling, or public transport. Free parking is an invitation to drive wherever we go.

### **CURES THAT KILL**

Most people know that cities require off-street parking spaces for every building, but few people—even those in the planning profession—have examined how these requirements affect cities. To see how parking requirements harm cities, consider how a popular medical practice once poisoned millions of patients.



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### **An Analogy: Lead Poisoning**

From antiquity until the twentieth century, physicians prescribed lead as medicine to treat all manner of ailments. One eighteenth-century medical treatise stated:

When the reader has perused the following treatise he will be inclined to think that this metal [lead] is one of the most efficacious remedies for the cure of most diseases which require the assistance of surgery.<sup>20</sup>

Doctors recommended “lead therapy” as a cure for abscesses, burns, cancer, contusions, gout, gunshot wounds, inflammation, itch, piles, rheumatism, ruptures, sprains, stiffness of the joints, and ulcers. Lead was useful in treating some of these ailments because it is toxic to microorganisms and therefore has local antiseptic properties. But physicians did not understand that lead is toxic to humans, and the medical misuse of lead killed many patients.<sup>21</sup> Although lead poisoning—a byproduct of lead therapy—went largely unnoticed until the late nineteenth century, a few early critics, like Benjamin Franklin, recognized the harm. Because he was a printer, Franklin had much contact with lead, and he wrote to a friend in 1786:

The Opinion of this mischievous Effect from Lead is at least above Sixty Years old; and you will observe with Concern how long a useful Truth may be known, and exist, before it is generally receiv’d and practis’d on.<sup>22</sup>

Despite Franklin’s warning, physicians continued to prescribe lead as a medicine until the twentieth century. They did so for understandable reasons: when the medical problem went away, the success could easily be attributed to lead therapy. But when the treatment did not work, or—worse—when it slowly killed the patient, the precise cause was less apparent; the patient was sick to begin with, and any number of factors could have been at play. The lead therapy sometimes produced a local antiseptic benefit and did help to cure one medical problem, but often did so at a high cost to the whole person.<sup>23</sup>

Off-street parking requirements are similar. They produce a local benefit—ample free parking—while harming the whole city. Free parking increases the demand for cars, and more cars increase traffic congestion, air pollution, and energy consumption. More traffic congestion in turn spurs the search for more local remedies, such as street widenings, more freeways, and even higher parking requirements. Off-street parking requirements quietly create citywide problems that are far worse than the local ones they are meant to solve.

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Although parking requirements resemble lead therapy in producing a local benefit while harming the whole system, the comparison goes only so far. Lead poisoning kills people, after all, and parking requirements do not. But this should not cheer us. Physicians continued to recommend lead as medicine until the twentieth century, even as their patients regularly died from the treatment. If physicians were so slow to recognize the evidence of lead therapy's lethal effects, planners may take even longer to recognize the more subtle systemic harm from parking requirements, no matter how strong the evidence.

Lead therapy and parking requirements are not the only professional practices that evolved into conventional wisdom without good theory or careful research. Medical practice was astonishingly primitive as recently as a century ago. Writing in 1981, Lewis Thomas (Chancellor of the Memorial Sloan-Kettering Cancer Center in New York) described a leading medical text that was published in 1896. The book presents a picture of medical practice *circa* 1900 that eerily resembles planning for parking today. Here is Thomas's dismaying description of the book:

The public expectation then, as now, was that the doctor would *do something*. There was no disease for which a treatment was not recommended.... Every other page contains a new, complex treatment always recommended with the admonition that the procedure be learned by rote (since it rarely made any intrinsic sense) and be performed precisely as described. Acute poliomyelitis had to be treated by subcutaneous injections of strychnine; the application of leeches; the administration of belladonna and purgative doses of mercury; the layering of thick ointments containing mercury and iodine over the affected limbs; faradic stimulation of the muscles; ice-cold shower baths over the spine; and cupping [bleeding].... All of this has the appearance of institutionalized folly, the piecing together of a huge structure of nonsensical and dangerous therapy, and indeed it was. The pieces were thought up and put together almost like thin air, but perhaps not quite. Empiricism made a small contribution, just enough in the case of each to launch it into fashion.<sup>24</sup>

This description of precise, disciplined folly bears a depressing similarity to contemporary parking policy. Every land use has a parking requirement that is learned by rote. A gas station must provide 1.5 parking spaces per fuel nozzle, and a mausoleum must provide 10 parking spaces per maximum number of interments in a one-hour period.<sup>25</sup> Why? Nobody knows. The requirements rarely make any intrinsic sense, but parking spaces must be provided exactly as required. Empiricism makes a small contribution, just enough in the case of each requirement to launch it into the zoning code. Medicine is a much older profession than urban plan-

## 12 *The High Cost of Free Parking*

ning, and perhaps planning for parking is at the same stage of intellectual development that medicine was in 1900. Planners are under tremendous pressure to *do something* about parking, and, just as doctors did a century ago, they have erected “a huge structure of nonsensical and dangerous therapy” in response. Off-street parking requirements do not solve transportation problems, but make them worse.

### **Poleodomogenic Catastrophes**

Parking requirements are now firmly entrenched in planning practice, but experience suggests that future planners may regret them. Urban planners of the 1950s and 1960s hurled themselves into implementing some truly bad ideas. High-rise public housing projects were once state-of-the-art, but many cities have since demolished them. Urban renewal (which Jane Jacobs compared to bloodletting) was once the best hope of downtowns, but most cities have now abandoned it in favor of historic preservation. Similarly, some cities have shifted from minimum parking requirements to parking caps, and other cities may follow. We do eventually recognize our mistakes, and we may some day condemn off-street parking requirements just as we now condemn the urban renewal disasters of the twentieth century.<sup>26</sup>

The problems caused by parking requirements resemble iatrogenic illnesses in medicine. *Iatrogenic* illness (illness caused by a physician) is a combination of the Greek *iatros* (physician) + *genic* (generated). Medical history is filled with iatrogenic illnesses, including lead poisoning. Catastrophes caused by city planners can be called *poleodomogenic*, a combination of the Greek *poleodimos* (city planner) + *genic*. Poleodomogenic catastrophes like slum clearance and urban renewal happen because city planners sometimes mistake Pandora’s box for a toolkit. In *The Reflective Practitioner: How Professionals Think in Action*, MIT planning professor Donald Schön described:

the counterintuitive consequences, the harmful side effects, and the unwanted by-products of implemented plans. Plans designed to solve problems either failed to solve them or created problems worse than the problems they had been designed to solve.<sup>27</sup>

This lament about planning resembles what Lewis Thomas said about medicine:

The tendency in medicine to try something, anything, to “try it out,” persists. Perhaps the profession will outgrow its vulnerability to fads and fancies as the scientific base for diagnosis and treatment steadily matures, but the long record of well-intentioned folly is both an embarrassment and a warning.<sup>28</sup>

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I believe planners will eventually admit that off-street parking requirements are a well-intentioned folly similar to lead therapy—a poison prescribed as a cure. Parking is desirable in most locations, but you can have too much of a good thing. The principle that “the dose makes the poison” applies perfectly to parking.<sup>29</sup> By prescribing massive overdoses of parking spaces, planners are poisoning the city. This sounds harsh, but it is a criticism of current practice, not of individual planners. Physicians who prescribed lead therapy were following the professional doctrine of their time, just as planners who require massive overdoses of parking are following the professional doctrine of our time. Planning for parking has caused severe adverse reactions, and if a policy is judged by its consequences, off-street parking requirements are a catastrophe. I hope the analogy with lead poisoning will provoke those who advocate parking requirements to explain their reasoning and defend their methods, but reform of even the worst practice can be a slow process (as Ben Franklin predicted), and parking requirements are unlikely to be an exception.

Professionally induced disasters are not unique to urban planning and medicine, of course. Before the *Titanic* sank, shipbuilders underestimated the need for lifeboats. Before the *Challenger* exploded, engineers underestimated the ambient temperature necessary for safely launching the space shuttle, and before the *Columbia* burned up, they underestimated the damage caused by shreds of foam striking the shuttle’s wings. Sometimes dramatic disasters like these must occur to stimulate reforms in a profession, but—like lead poisoning—the harmful consequences of parking requirements are insidious. Nevertheless, they confront us everywhere: automobile dependency, traffic congestion, energy waste, air pollution, and perhaps even global climate change. Although not the sole cause of these problems, parking requirements intensify them.

**THE TWENTY-FIRST CENTURY PARKING SOLUTION**

If parking requirements do more harm than good, how should cities plan for parking in the twenty-first century? In this book I analyze the parking problem, criticize current planning practice, and propose reforms. To foreshadow my arguments, I will summarize the three main parts of the book. Parts I and II analyze the parking problem, while Part III proposes solutions.

Part I examines our current approach to planning for parking. Urban planners set minimum parking requirements for every land use, but the requirements often seem pulled out of thin air or based on studies that are poorly conceived (e.g., samples taken at times of peak demand at sites where parking is free) and limited (e.g. the typical sample size is statistically inadequate). In turn, these faulty standards and policies are

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Stuart Cohen, Transportation and Land Use Coalition

**Figure 1-3. Parking is desirable, but you can have too much of a good thing.**

perpetuated as they are copied from one city to the next. The many significant costs related to current parking policies (e.g., increased housing prices, unjust subsidies for cars, distorted transportation choices, sprawl, social inequity, and economic and environmental degradation) are not a consideration. Beyond their quantitative flaws, parking requirements are also divorced from any qualitative criteria: they ignore what the results *look* like.

Part II shows that cities inadvertently create the economic incentive to cruise for curb parking when they charge too low a price for it. Research at six sites showed that an average of 30 percent of the cars in congested traffic were cruising for parking. Cruising increases vehicle travel without adding either vehicles *or* real travel. The aggregate consequences of all this cruising—congested traffic, wasted time, squandered fuel, and polluted air—are staggering.

Part III offers new solutions to the parking problem. It explains how a well-functioning market with prices that vary by the time of day and day of the week can balance a variable demand for curb parking with the fixed supply of curb spaces. If cities charge market prices for curb parking, drivers will usually be able to find an available space near their des-

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tionation. Market-priced curb parking will therefore save time, reduce congestion, conserve energy, improve air quality, and produce public revenue. The real barrier to charging for curb parking is political, not technological. I argue that cities can overcome this political barrier by returning all meter revenue to the neighborhoods that generate it. Where nonresidents pay for most curb parking, using the revenue to pay for neighborhood public services can persuade residents to support charging market prices for their curb parking spaces. And if cities charge market prices for curb parking, spillover will no longer be a problem, so they can remove their off-street parking requirements. These three reforms—charge fair-market prices for curb parking, return the resulting revenue to the neighborhoods that generate it, and remove the zoning requirements for off-street parking—can align our individual incentives with our collective interests and produce enormous benefits at almost no cost. All these benefits will result from subsidizing people and places, not parking and cars.

In sum, this book offers not just a critique of free parking, but it also suggests how planners can frame an argument—economic, social, environmental, and aesthetic—about new ways to plan for parking that are sensible, effective, and fair.



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### CHAPTER 1 NOTES

1. The 1990 Nationwide Personal Transportation Survey asked respondents, Did you pay for parking during any part of this trip? for all automobile trips made on the previous day (see Appendix B). Respondents reported that they parked free for 99 percent of their trips. Most drivers probably feel that they pay for parking on more than 1 percent of their own trips, and many do. Drivers who live in older and more compact cities undoubtedly pay for parking more frequently than do those who live in sprawling suburbs. Americans make 235 billion vehicle trips a year, so if they pay to park on 1 percent of these trips, they pay for parking more than 2 billion times a year, but they also park free 233 billion times a year.

2. Mogren and Smith (1952, 27).

3. The 2001 National Household Travel Survey found that 87 percent of trips of less than 50 miles were made by personal vehicle. Of the rest, 1.5 percent were by public transit, 1.7 percent by school bus, 8.6 percent by walking, and 1.7 percent by other modes (United States Department of Transportation 2003a, 21 and 25).

4. See Davis and Diegel (2002, Tables 1.4, 1.13, and 2.5) for the data on energy consumption for transportation in the U.S. The U.S. consumed 25.9 percent of total world oil consumption in 2001 (Table 1.4). Transportation accounted for 67.3 percent of U.S. oil consumption (Table 1.13), and road transportation accounted for 75.5 percent of U.S. oil consumption for transportation (Table 2.5). Therefore, U.S. road transportation accounted for 13.2 percent of world oil consumption (25.9% × 67.3% × 75.5%). Road transportation refers to travel by cars, trucks, motorcycles, and buses. In 2001 the U.S. imported \$104 billion worth of petroleum, which accounted for 8 percent of total imports and 29 percent of the balance of trade deficit (U.S. Census Bureau 2002a, Exhibits 1, 6, and 9).

5. See Schneider (1971), Wolf (1996), Buel (1973), Kelly (1971), and Mowbray (1969). The word “parking” does not appear in the index of any of these books. Academic writers also fail to analyze how parking affects transportation and cities. Consider two recent texts by distinguished scholars of transportation and urban planning: *Essays in Transportation Economics and Policy* by Gómez-Ibáñez, Tye, and Winston (1999), and *Urban Land Use Planning* by Kaiser, Godschalk, and Chapin (1995); parking does not appear in the index of either of these books.

6. Brooks (2002, 19 and 24).

7. William Blake (1757-1827) was referring to an earlier land-use problem (smoky factories during the Industrial Revolution) when he asked “And was Jerusalem builded here/Among these dark Satanic mills?”

8. Flink (1976, 15) reports that Charles and Frank Duryea made the first sale.

9. Appendix H shows the data on human and vehicle populations from 1900 to 2000. The high rank of New Zealand in vehicle ownership can be explained by its low population density (a population of 4 million in a country 10 percent larger than the United Kingdom) and a large supply of second-hand cars from Japan; both Japan and New Zealand drive on the left, and Japan’s strict vehicle-inspection program strongly encourages the export of cars after only a few years.

10. The data for the total number of vehicles in the rest of world are available only in selected years before 1946 (1930, 1935, and 1937-1940). Although the U.S. owned half of all the world’s vehicles in 1965, it owned only 30 percent in 2000.

11. The 6.079 billion persons on earth in 2000 owned 735 million vehicles. If 6.079 billion persons owned 771 vehicles per 1,000 persons (the U.S. rate in 2000), they would own 4.7 billion vehicles—over six times the actual number of vehicles on earth in 2000.

12. Not all motor vehicles are cars, but vehicles other than cars—such as trucks—occupy even larger parking spaces, so estimating the space required to park 4.7 billion cars will

*The Twenty-first Century Parking Problem* 17

underestimate the space required to park 4.7 billion vehicles. A typical parking lot holds about 130 cars per acre (335 square feet per car); this is equivalent to 83,200 cars per square mile (130 cars per acre x 640 acres per square mile). At this density, 4.7 billion parked cars would occupy 56,000 square miles (4.7 billion cars ÷ 83,200 cars per square mile). England and Greece each occupy 51,000 square miles.

13. See Chapter 7 for the ratio of parking spaces to cars. The area of France is 212,000 square miles and the area of Spain is 192,000 square miles. Another way to imagine the area needed to park 4.7 billion cars is to look at a parking lot big enough to hold 100 cars. Forty-seven million of these 100-car lots would be needed to park 4.7 billion cars.

14. Flink (1976, 34).

15. Increases in fuel prices will spur increases in fuel efficiency, and increases in parking prices will spur increases in parking efficiency. Automated garages, for example, reduce the space needed for parking because they typically store twice as many cars in the same volume as a conventional garage (see Appendix A). Other changes, such as car-sharing arrangements, may also reduce the share of the time that cars are parked. See Appendix B for the average time a car is parked.

16. Aristotle (*Politics*, Book II, Chapter 3). A century earlier, the Athenian historian Thucydides made a similar observation: “[The Peloponnesians] spend a small fraction of [their time] considering any public matter and the greater part acting on domestic interests; each thinks that his own negligence does no harm and it is someone else’s business to use foresight on his behalf, so that when the same notion is entertained by everyone separately it goes unobserved that common interests are being destroyed collectively” (Thucydides, Book 1, Section 141, p. 69). Ronald Lipp (2001, 92) comments that the human tendency to neglect common interests is so fundamental that a literature search would find early statements of the problem in many cultures.

17. Schelling (1978, 111-113).

18. Hardin (1977, 21). Garrett Hardin was a professor of human ecology at the University of California at Santa Barbara and the author of many books and articles on biology, ecology, and ethics. Hardin (1977, 27) also used parking meters as an example of social arrangements that encourage responsible behavior: “To keep downtown shoppers temperate in their use of parking space we introduce parking meters for short periods, and traffic fines for longer ones. We need not actually forbid a citizen to park as long as he wants to; we need merely make it increasingly expensive for him to do so. Not prohibition, but carefully biased options are what we offer him.” Most parking meters, however, are in the central business district and curb parking is free almost everywhere else.

19. Chapter 7 shows that for a typical commute trip, the driver’s total variable cost of automobile commuting (operating cost plus parking cost) is \$2.32 a day if the employer pays for parking, but \$8.09 a day if the driver pays for it. Free parking at work therefore subsidizes 71 percent of the total variable cost of automobile commuting.

20. Goulard (1784, 2).

21. In her research on the medical history of lead, Jane Lin-Fu (1992) describes lead poisoning as the only preventable man-made disease that was allowed to remain pandemic for centuries.

22. Letter to Benjamin Vaughn on July 31, 1786. Reprinted in Goodman (1945, 556). Available online at [www.ledizolv.com/LearnAbout/LeadHazards/benfranklin.asp](http://www.ledizolv.com/LearnAbout/LeadHazards/benfranklin.asp). See also McCord (1953, 398). Lead was added to gasoline (and thus to urban air pollution) through most of the twentieth century, showing that Franklin was correct in warning about how long a useful truth may be known before it is acted on. Lead additives to gasoline improved automobile performance but polluted the air that drivers (and everyone else) breathed.



## 18 *The High Cost of Free Parking*

23. Lead was used for many purposes where its immediate benefits were appreciated but its long-term harm was unrecognized. The Romans wore lead oxide as a cosmetic, prepared food in lead pots, stored wine in lead vessels (lead tastes sweet, and improved the wine's flavor), and drank water delivered in lead pipes (the word "plumber" comes from the Latin word for lead, *plumbum*). Lead poisoning may even have contributed to the decline of the Roman Empire. University of Michigan environmental chemist Jerome Nriagu (1983) argues that the aristocrats' diets were unusually rich in lead, and that this helps explain why only one of Rome's original aristocratic families had any surviving members by the second century AD. Although many people must have died of lead poisoning throughout history, diagnosis is difficult long after their deaths. Nevertheless, the famous case of Ludwig von Beethoven's hair provides startling evidence. Beethoven suffered from many painful medical problems during his life: kidney stones, hepatitis, rheumatism, skin disorders, and deafness. When he died in 1827, admirers snipped locks of hair from his corpse and revered them as relics. Analysis of several strands of this hair in 1995 showed massive lead toxicity in Beethoven's body at his death, more than 40 times the normal presence of lead (Martin 2000, 235). Lead poisoning may have caused, or at least exacerbated, his many illnesses. The source of the lead in Beethoven's body is unknown, but it could have come from cookware or tableware that contained lead, from wine that was "plumbed" to lessen its bitterness, or from lead therapy.

24. Thomas (1981, 40). Lewis Thomas, M.D., served as dean of the New York University School of Medicine and president and chancellor of the Memorial Sloan-Kettering Cancer Center. When Thomas went to medical school in the 1930s, his father (also a physician) gave him the textbook (*Therapeutics of Infancy and Childhood*) with the advice that although the book was out of date, there were things in it that might be useful. When the younger Thomas looked through the book while he was a medical student, he found it bewildering and irrelevant to medicine in the 1930s, but as he grew older, the book fascinated him as a historical document that showed the state of the medical profession in 1900. The book's distinguished author (Dr. Abraham Jacobi) was one of the major figures of his time in academic medicine, and his popular textbook ran through several editions.

25. See Table 3-4 in Chapter 3.

26. Consider also these 180-degree turns in transportation planning. In the 1950s, many cities created one-way street systems to speed traffic through downtowns, and in the 1990s converted them back to two-way streets to calm traffic. Similarly, in the 1950s, many cities eliminated on-street parking in downtowns to speed traffic and provided off-street parking lots instead. In the 1990s, a common strategy was to redevelop off-street parking lots to increase downtown density and to restore on-street parking to calm the traffic flow and to buffer pedestrians from moving vehicles.

27. Schön (1983, 206). Similarly, Berkeley planning professor Michael Teitz (2000, 304) refers to "the disasters of public housing and urban renewal in the 1950s and 1960s.... It may be fair to say, however, that planners did learn from these errors."

28. Thomas (1981, 42). Similarly, Reyner Banham, Paul Barker, Peter Hall and Cedric Price (1969, 435-436) wrote, "planning tends to lurch from one fashion to another, with sudden revulsion setting in after equally sudden acceptance.... Planning is always in thrall to some outmoded rule of thumb."

29. The sixteenth century Swiss physician Paracelsus (1493-1541) wrote, "Dosis facit venenum" (The dose makes the poison). No substance is inherently poisonous, but too much of anything in the system can be poisonous.

AGENDA INFORMATION MEMORANDUM  
NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY  
MEETING DATE: August 8, 2018

INITIATED BY: Josiah Masingale, Executive Director

INFORMATION:\_\_\_ ACTION:\_\_\_ OR DISCUSSION:\_\_\_X\_\_\_  
=====

AGENDA ITEM:

Discover Nederland Guide Discussion.

SUMMARY:

The Discover Nederland Guide is published and distributed locally to educate visitors on the Nederland area and it's businesses and amenities. The publication has options for the DDA to market the downtown area through advertising and additional print runs that can be distributed by the DDA in key strategic locations outside of Nederland.

Kay Turnbaugh, owner and publisher of the Discover Nederland Guide, has provided several boxes of guides for the DDA to distribute in areas outside of Nederland. To print additional guides, with a DDA center-fold advertisement (\$675), would be \$1,575.00 for 2,500 copies plus the cost of the advertisement (\$2,250 total). Kay has also offered placement of the DDA's logo with a link to the DDA website on the <http://discovernederland.com/> website for \$45/year.

RECOMMENDATIONS:

Board discussion around marketing.

FINANCIAL CONSIDERATIONS: N/A

ATTACHMENT(S): N/A

AGENDA INFORMATION MEMORANDUM  
NEDERLAND DOWNTOWN DEVELOPMENT AUTHORITY  
MEETING DATE: August 8, 2018

INITIATED BY: Josiah Masingale, Executive Director

INFORMATION:\_\_\_ ACTION:\_\_\_ OR DISCUSSION: X  
=====

AGENDA ITEM:

RiverWalk Preliminary Design Discussion.

SUMMARY:

At the June 11<sup>th</sup> DDA Board of Directors Meeting there was guidance provided regarding next steps on the potential RiverWalk Preliminary Design project, including writing a letter to all property owners directly adjacent to the creek asking for their commitment to participate in this initial step in engaging the community on a preliminary design. The letter received three positive responses of the twelve sent, with one additional verbal positive response.

The board also requested that the Mountain People’s Co-Op be approached specifically about project to request its board’s formal commitment to participate in the preliminary design phase. Josiah Masingale, DDA Director, attended the Mountain People’s Co-Op July 16<sup>th</sup> Board Meeting to discuss the potential project and answer questions. Following up on that meeting the Mountain People’s Co-Op Board sent an email to DDA Board Member Rea Orthner, whom authored the 2016 Wetland and Riparian Habitat Assessment (attached) of the creek corridor, with some follow-up questions which specifically cited the 2016 study (page 4 section 6.1), which Rea Orthner (owner of Peak Ecological Services) answered as author of the study with the following response.

“Hi Mandy,

Sorry I was not able to attend the Board meeting last night. This is a busy time of year for me.

I would encourage the COOP Board to support the Riverwalk project because it has the potential to increase the overall ecological condition of the Middle Boulder Creek Riparian habitat. I recommend that certain design considerations and mitigation measures be required as a part of the project. Many of these can be found in the report, but here is a quick summary below. Please feel to contact me with further questions. Without Riverwalk and the funding opportunities it would bring, I fear that the ecological condition of the MBC riparian/wetland habitat may decline due to overall lack of management and lack of restoration.

Design/Development Guidelines.

- Design the trail to avoid or minimize impacts to wetlands and upland riparian habitats to the most practicable extent possible. We don’t want to fragment the habitat further.
- If impacts cannot be totally avoided, then mitigate such impacts.
- Consider developing a Management Plan. The Management Plan would provide a guiding vision for the Middle Boulder Creek and North Beaver Creek riparian/wetland habitat areas, describe the

allowed uses as well as prohibited uses (example dogs must be on-leash to protect wildlife), and detail the proposed projects and programs for the preservation and community enjoyment of the area.

- A detailed wetland delineation should be conducted in accordance with USACE standards, including a fen (old-growth wetland) assessment. The existing mapping is general in nature in only and not detailed enough for detailed engineering design.

Potential Mitigation Measures (see section 6.0 of the report).

- Eliminate social trails which fragment the riparian habitat and formalize trails which can be used.
- Plant additional riparian trees and shrubs in several areas lacking such vegetation along the creek.
- Consider larger riparian restoration projects such as expanding riparian habitat width along fisherman's parking lot, along the Chipeta park parking lot, along the steep bank below the Visitor's Center parking lot.
- Development educational/ interpretive signs either in one location or along the creek path

Sincerely,

Rea”

RECOMMENDATIONS:

Board discussion around next steps of potential project.

FINANCIAL CONSIDERATIONS: N/A

ATTACHMENT(S): Wetland and Riparian Habitat Assessment.



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# Riparian & Wetland Habitat Assessment

Middle Boulder Creek  
Town of Nederland  
Boulder County, Colorado

---

*prepared for:*

**Town of Nederland**  
PO Box 396, Nederland, CO 80466

*prepared by:*

**Western Ecological Resource, Inc.**  
711 Walnut Street, Boulder, CO 80302

March 2016

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## 1.0 Introduction

The Middle Boulder Creek riparian corridor occurs within the heart of the Town of Nederland (Town) and provides important recreation, aesthetic, and environmental benefits. The Town's Downtown Development Authority (DDA) is currently updating their Master Plan document and requested a Riparian and Wetland Habitat Assessment in order to provide environmental guidance for future planning. This report summarizes the extent and functioning of the riparian and wetland ecosystem of the project area, provides guidance on minimizing adverse environmental impacts, lists recommendations for future restoration work to improve ecosystem functioning, and identifies any high-quality areas that would warrant special consideration or protection.

## 2.0 Environmental Setting

The 10 acre project area occurs along Middle Boulder Creek between Centennial Bank, located at 26 South Highway 119, and Barker Reservoir (Figure 1). The project site lies at an approximate elevation of 8,240 feet and includes a 2,000 foot long section of Middle Boulder Creek and a 300 foot long section of North Beaver Creek. The site is bordered on the north by First Street, which includes a commercial district along First Street, several residences and undeveloped land, and on the south by a hotel and a public park, Chipeta Park. There are also several developed trails within the project area.

## 3.0 Methods

The extent of the riparian habitat was mapped using aerial photography and field reconnaissance conducted on September 24, 2015 by Rea Orthner, botanist and ecologist with Western Ecological Resource, Inc. (Figure 2). A preliminary wetland delineation was also conducted using the same methodology and is based on vegetation and hydrology criteria of the 1987 U.S. Army Corps of Engineers (Corps) Wetland Delineation Manual and 2010 Regional Supplement. This preliminary wetland delineation is intended for general planning purposes only. In the future, a formal wetland delineation and a Clean Water Act Section 404 permit application would need to be prepared for any proposed wetland or stream impacts. It should be noted that riparian habitats, outside of any wetland areas, are not under any federal or state jurisdiction. Hence, impacts to riparian areas fall under the sole discretion of the property owner.

In order to assess the functioning of the riparian and wetland habitats, the Proper Functioning Condition (PFC) methodology was used (USDA-NRCS 1998). The PFC assessment is a qualitative method based on hydrology, vegetation and soil/landform attributes that provides information on whether a riparian-wetland area is physically functioning in a manner that allows the habitat to be resilient to change, such as high flow events or other disturbances. The PFC is a useful tool for prioritizing restoration activities and would provide a consistent approach to examining the entire project reach. A copy of the PFC checklist is contained in Appendix A.

## 4.0 Results

Within the project area, a total of 4.7 acres of riparian habitat and 2.3 acres of wetland habitat occur along Middle Boulder Creek and North Beaver Creek. Overall, these two streams and the willow shrub riparian habitat along their banks provide several important ecological functions. For example, their floodplains provide space for flood flows and the vegetation on the floodplain slows the movement of water and reduces its erosive power. The shrubs along the creek function to stabilize the creek channel and prevent stream banks from eroding. Willows (*Salix* spp.) in particular are excellent at stabilizing stream banks due to their deep binding root masses, and the rhizomatous native rushes and sedges such as smallfruit bulrush, beaked sedge (*Carex utriculata*) and water sedge (*Carex aquatilis*) that are present provide similar functions. In addition, the



riparian corridor provides floodwater retention and peak flood reduction functions which are important in helping to mitigate flood runoff from snow melt and heavy precipitation events. The densely vegetated banks help to remove sediment and assimilate nutrients, which is important in maintaining water quality. Finally, the riparian habitat provides quality wildlife habitat because of the availability of water, shade, and the diversity of food and cover sources.

## 4.1 Middle Boulder Creek

### 4.1.1 Description

The riparian and wetland habitat along Middle Boulder Creek (Photo 1) is generally dominated by willows with occasional shrubs of alder (*Alnus incana* subsp. *tenuifolia*) and river birch (*Betula fontinalis*). Stands of aspen trees (*Populus tremuloides*) occur in the eastern portion of the project area. The riparian understory is variable depending on hydrologic regime and degree of shading. Common understory plants in the riparian-wetland areas include fowl bluegrass (*Poa palustris*), bluejoint reedgrass (*Calamagrostis canadensis*), water sedge (*Carex utriculata*), beaked sedge (*Carex utriculata*), and smallfruit bulrush (*Scirpus microcarpus*). In drier upland riparian areas, plants such as bush honeysuckle (*Distegia involucrata*), Woods' rose (*Rosa woodsii*), starry false Solomon's seal (*Maianthemum stellatum*), cow parsnip (*Heracleum sphondylium*), field horsetail (*Equisetum arvense*), and fireweed (*Epilobium angustifolium*) occur.

Non-native plants observed include redtop (*Agrostis gigantea*), reed canarygrass (*Phalaris arundinacea*) and noxious weeds such as Canada thistle (*Cirsium arvense*), ox-eye daisy (*Leucanthemum vulgare*) and scentless chamomile (*Matricaria perforata*).

### 4.1.2 High Quality Areas/Unique Habitats

One high-quality wetland area was observed just northeast of the Magnusson Hotel. This wetland is dominated by wetland graminoids including water sedge, bluejoint reedgrass and Baltic rush (*Juncus balticus*). The landform of this area suggests that it may support deep organic-rich soils, or peat, indicating it could be a fen. However, no fen assessment has been completed to date. In addition, this wetland has a small population of sweet coltsfoot (*Petasites frigidus* var. *sagittatus*), an uncommon wetland plant in Colorado (Ackerfield 2015). See Photo 2. This plant carries no legal protections, *per se*, however it is considered a Species of Local Concern by the U.S. Forest Service and the presence of sweet coltsfoot can indicate specialized wetlands that harbor other rare plants (Popovich 2015). A description of the plant follows.

#### Sweet coltsfoot (*Petasites frigidus* var. *sagittatus*)

*Sweet coltsfoot earns its common name from the sweet scent of its flowers and the large, basal leaves. Coltsfoot begins flowering as early as February in cold, swampy wetlands across Alaska and northern Canada to Newfoundland and south to California, Colorado, South Dakota, Wisconsin, and New York. Often coltsfoot is the first wetland species to begin flowering. The plant's cluster of white to pinkish-purple flower heads is borne at the tip of a fleshy stem covered by clasping, scale-like leaves. The larger basal leaves (the ones that look like horse hooves) emerge later in the spring, often after the flower heads have been replaced by silvery-white seed heads. These leaves arise a short distance from the flowering stalk at the end of an underground rhizome.* (Fertig, 2015)

### 4.1.3 Functional Condition Rating

Overall, the riparian and wetland habitats along Middle Boulder Creek appear to be in Proper Functioning Condition (PFC). The floodplain above bankfull appears to be inundated in relatively frequent events, the sinuosity, width/depth ratio and gradient appear to be balanced with the landscape setting, the vegetation is relatively diverse and healthy, and the geomorphology appears to be stable. Appendix A contains the PFC checklist, which includes details on the assessment. However, this rating is threatened by inadequate shrubby vegetation along some of the stream banks which increases their susceptibility to erosion and reduces wildlife habitat and connectivity. In addition, numerous social trails are present throughout the riparian habitat and some of the

stream banks show extremely heavy human use. At least one home abutting the creek appears to have inadequate backfill materials along its foundation able to withstand the erosive forces of the creek when it is running at or above bankfull. Finally, the creek has an accumulation of gravel deposits and appears to be over-widened near its entrance into Barker Reservoir. However, this may simply be the result of a change in channel slope, the configuration of the weir bridge, or other factors which cause the water to slow and gravels to deposit.

## **4.2 North Beaver Creek**

### **4.2.1 Description**

North Beaver Creek is a small perennial stream, approximately 2 feet wide. The headwaters of North Beaver Creek are located in the Caribou Valley west of the Town of Nederland. Like Middle Boulder Creek, the riparian habitat along North Beaver Creek is comprised of willows with the occasional alder and river birch. In the understory, cow parsnip, redtop, Wood's rose, and starry false Solomon's seal are common. Canada thistle, a noxious weed, is quite common along portions of this stream. See Photo 3.

### **4.2.2 High Quality Areas/Unique Habitats**

No high quality or unique riparian-wetland habitats were observed within the project area along North Beaver Creek.

### **4.2.3 Functional Condition Rating**

Overall, the narrow riparian and wetland habitat along North Beaver Creek appears to be in Proper Functioning Condition (See Appendix A). The PFC rating is based on the general characteristics of this short segment, which show geomorphic stability, the presence of a diverse and healthy riparian community, and a functioning floodplain. However, there is room for improvement. For example, the western end of the creek is incised four to five feet below the Fisherman's parking lot to the south and there is no floodplain development in this area. This area also lacks well-developed willows which help stabilize stream banks. Finally, a metal fence across the creek at its eastern end accumulates debris and may inhibit natural streamflow characteristics in this area.

## **5.0 General Development Guidelines**

The following general development guidelines should be utilized when planning activities within or adjacent to the project area.

1. Avoid impacts to the high-quality wetland area northeast of the Magnuson Hotel. Complete a more detailed floristic inventory this wetland with a focus on rare plant presence and also conduct a fen assessment. Fens are wetlands characterized by the accumulation of organic-rich soils and are primarily fed by groundwater sources. Because the rate of accumulation of peat in fens is so slow, these ecosystems are generally considered to be irreplaceable. Fen soils are Histosols, characterized by more than 40 cm (16 inches) of organic matter accumulation, commonly referred to as peat.
2. Minimize and avoid impacts to wetland areas to the most practicable extent possible. If impacts to wetlands are likely to occur, complete an official wetland delineation and Clean Water Act Section 404 permit application for the U.S. Army Corps of Engineers.
3. Consider developing a Management Plan. The Management Plan would provide a guiding vision for the Middle Boulder Creek and North Beaver Creek riparian/wetland habitat areas, describe the allowed uses as well as prohibited uses, and detail the proposed projects and programs for the preservation and community enjoyment of the area. Funding opportunities for improvement/restoration projects may be more easily obtainable when a Management Plan is in place.

4. Encourage local land owners to plant native riparian trees or shrubs on their properties which abut the creek.

## **6.0 Specific Recommendations**

The following recommendations are for specific management actions to improve the health of the riparian and wetland ecosystem of the project area. The recommendations are grouped into three main categories: 1) social and educational; 2) vegetation; and 3) landform improvements. Social and educational recommendations are those which relate to the management of the habitat and would require little if any cost. The vegetation improvements include actions such as tree and shrub plantings and noxious weed control and would be fairly economical to implement. Finally, the landscape improvements would necessitate additional planning and possibly a greater capital expense. See Figure 3.

### **6.1 Social and Educational Recommendations**

#### **6.1.1 Social Trails & Human Use**

The riparian and wetland habitats of the project area receive significant human use and numerous social trails were observed throughout the area (See Photo 4). The majority of these trails should be eliminated in order to preserve the ecological integrity of the area. Trails fragment habitat leading to increased human use and wildlife disturbance and are corridors for weed invasion. In addition, frequent trail use leads to soil compaction, trampling of vegetation, and lowered plant growth and reproduction. Trampling along the banks of Middle Boulder Creek was especially severe near the inlet to Barker Reservoir, just upstream of the bridge weir, where all vegetation had been eliminated and the stream banks showed evidence of erosion (See Photo 5). In addition, several trails appear to be frequented by people who leave trash and other debris, further threatening the environment. In order to eliminate social trails, signage should be posted in prime locations to dissuade people from utilizing these access points. Low-impact fencing (e.g. post and rail fencing) could also be erected across some of the social trails to prevent human use. If additional trails are needed within the project area, then the location of these trails should be closely analyzed in order to maximize public benefit while reducing environmental impacts. Finally, the old chain-link fence and trash should be removed from North Boulder Creek just upstream of where it enters Middle Boulder Creek.

#### **6.1.2 Dogs**

One of the greatest threats posed to the wildlife are off-leash dogs. Dogs can flush incubating birds from nests, leaving the eggs or young unattended for extended periods of time. Dogs chase wildlife and can kill small mammals. Off-leash dogs can also harass humans using trails. Other problems associated with dogs include their excrement and associated odors, as well as increasing soil nitrogen which non-native weeds often capitalize on. Signage should be posted to keep all dogs on-leash and for owners to pick up dog waste and dispose of it properly.

### **6.2 Vegetation Recommendations**

#### **6.2.1 Woody Riparian Plantings**

Plant native willows and/or other shrubs along North Beaver Creek and Middle Boulder Creek in the areas identified in Figure 3. Native shrubs can either be purchased through native plant nurseries (min. 5-gallon size recommended) and planted similarly to landscape shrubs, or, for a more economical approach, we recommend sprigging willows from adjacent stands in early spring prior to leaf-out. Willows have adventitious buds and will root out if a cutting is placed in the appropriate habitat. The use of volunteers or local youth from Teens Inc. would further reduce costs. In addition, encourage private land owners abutting the creek to plant native trees and shrubs to enhance the structural and species diversity of the riparian habitat. Table 2 contains a list of native shrubs and trees appropriate for Nederland. See Photo 5.

## 6.2.2 Noxious Weed Control

Noxious weeds are extremely problematic in and around the project site as well as within the Town of Nederland. Noxious weeds decrease species diversity and the ecological integrity of habitats including riparian areas. In addition, weeds will continue to spread outside of the project site, and become established at local trailheads and elsewhere on National Forest Systems lands. We highly recommend that the Town implement an Integrated Weed Management Plan for the project area. Specific Colorado state-listed noxious weeds observed within and adjacent to the riparian and wetland habitats include Canada thistle, ox-eye daisy, and scentless chamomile. See Photo 6.

Before any ground-disturbing activities, ensure that the following occur:

- Survey project areas to document the presence of any pre-existing weed infestations. Treat infestations prior to ground-disturbing activities and remove all weed seed and propagules to prevent weed spread.
- Locate and use weed-free project staging areas. Where this is not possible, treat existing noxious weeds in these areas prior to the staging of any equipment.
- To minimize risk of noxious weed introduction and spread, require that all equipment used for ground-disturbing activities be clean, i.e., free of mud, dirt, plant parts, and seeds, or other debris that could contain or hold plant parts or seeds, prior to entering the project area, and prior to leaving a weed-infested project area.
- Use certified weed-free hay, straw or mulch. However, preference should be given to use of non-agricultural mulch products such as wood straw or bonded fiber matrix.
- Monitor revegetated areas for noxious weed invasion and treat infestations.

## 6.3 Landform Improvements

### 6.3.1 Floodplain/Riparian Habitat Restoration Activities

Four areas were identified as potential sites for floodplain/riparian habitat restoration (Figure 3). All four of these areas lack well developed wetlands or riparian habitats due to artificial fill. These areas include:

- North side of Middle Boulder Creek on the bank parcel. The slope below the Visitor's Center parking lot is extremely steep and limits the development of wetland and riparian habitat in this area. If the landform in this area cannot be changed due to excessive cost, additional plantings of willows or other riparian shrubs could occur on the bank in order to provide a continuous band of scrub-shrub habitat. See Photo 7.
- South side of Middle Boulder Creek adjacent to the Chipeta Park parking lot. The riparian habitat along the Chipeta Park parking area is extremely narrow and has been replaced by large boulders. The parking lot could be reconfigured to allow the same amount of parking with a smaller footprint. This would allow the riparian habitat to be widened along the south bank of the creek. (Photo 8).
- Fisherman's Parking Lot. There are two areas at Fisherman's parking lot that are constricting the riparian habitat development along Middle Boulder Creek and North Beaver Creek. The fill could be removed in these areas to restore the floodplain and additional riparian shrubs could be planted to restore the riparian habitat. (Photos 9 and 10).

### 6.3.2 Bank Stabilization

One or more homes along Middle Boulder Creek appear to have suffered the erosive forces of the creek in the recent past. The bank of the creek may need to be stabilized with larger materials so that the structural integrity of the building foundations is maintained. If possible, add larger

diameter willow stakes along with large cobble material to enhance the shrubby riparian habitat in this area. See Photo 11.

### **6.3.3 Instream Rock Structure**

One instream rock structure is located in Middle Boulder Creek, just downstream of the homes identified in Section 6.3.2 above. This rock drop structure should be analyzed by a fluvial geomorphologist or a stream hydrologist to determine its effectiveness and its affect (if any) on the bank erosion adjacent to the upstream homes. See Photo 12.

### **6.3.4 Wetland Restoration (Trail Removal)**

One high quality wetland area was identified just northeast of the Magnusson Hotel. A formal pedestrian trail currently bisects this wetland area. If desired, the trail could be removed and the area restored back to wetland. This would enhance both the hydrologic connectivity of the wetland with Middle Boulder Creek and the wildlife habitat connectivity.

### **6.3.5 Educational Nature Park**

If possible, redevelop Fisherman's parking lot into a healthy riparian ecosystem that would benefit the vitality of this important area, namely the confluence of Middle Boulder Creek and North Beaver Creek. Ideally, any artificial fill would be removed, clean topsoil imported, and the area seeded and planted with native wetland and riparian plants. An educational component (signage) for this area could also be developed that would add to its important ecosystem benefits.

## 7.0 References

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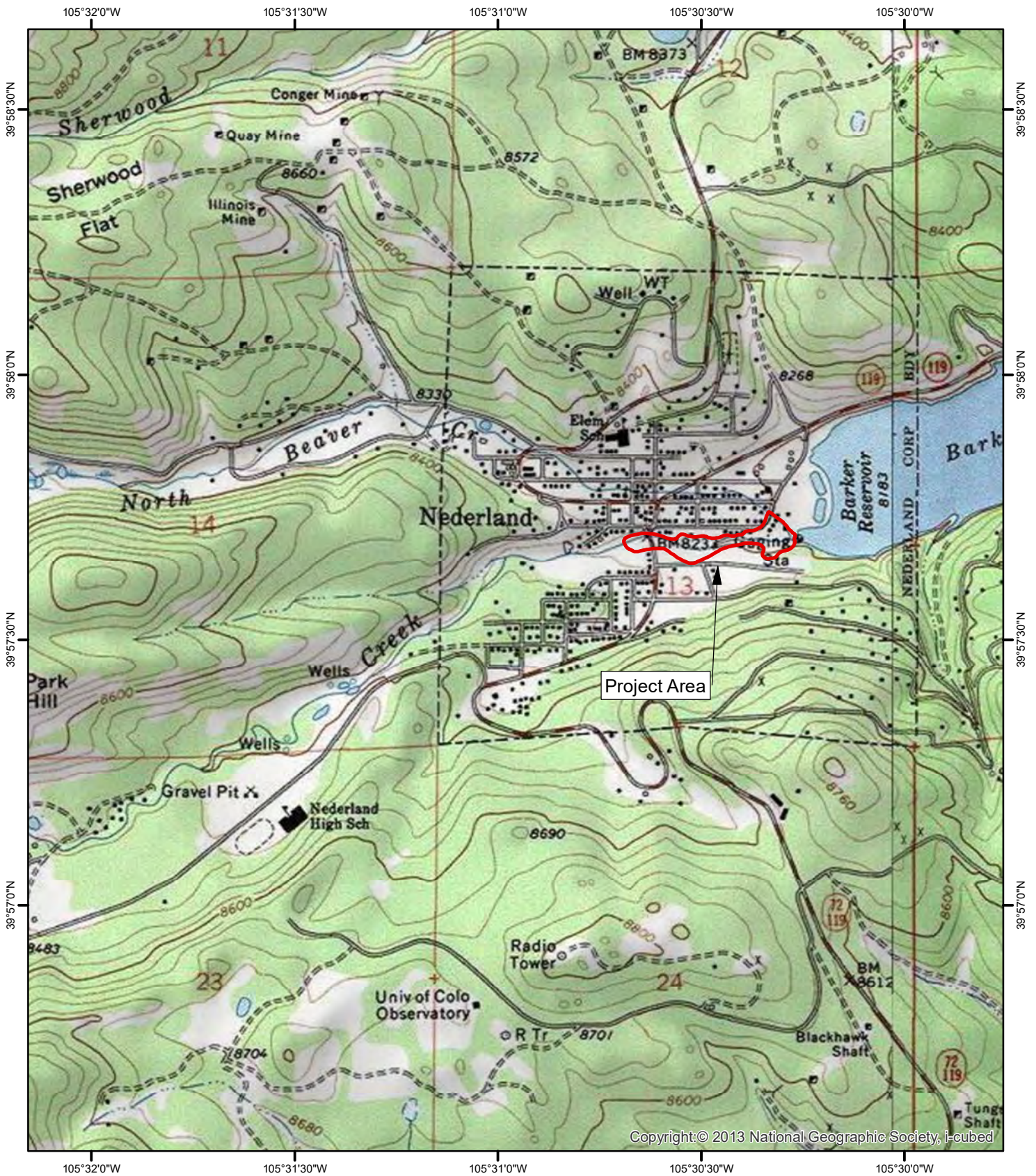
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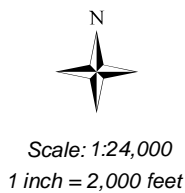
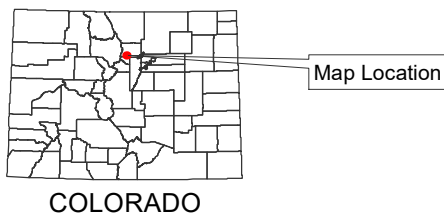
U.S. Army Corps of Engineers. 1987. Wetlands Delineation Manual, Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

## 8.0 Figures




BASE: USGS 7.5' Nederland and Tungsten, Colorado Quadrangles  
 Grid Lat/Long WGS 1984

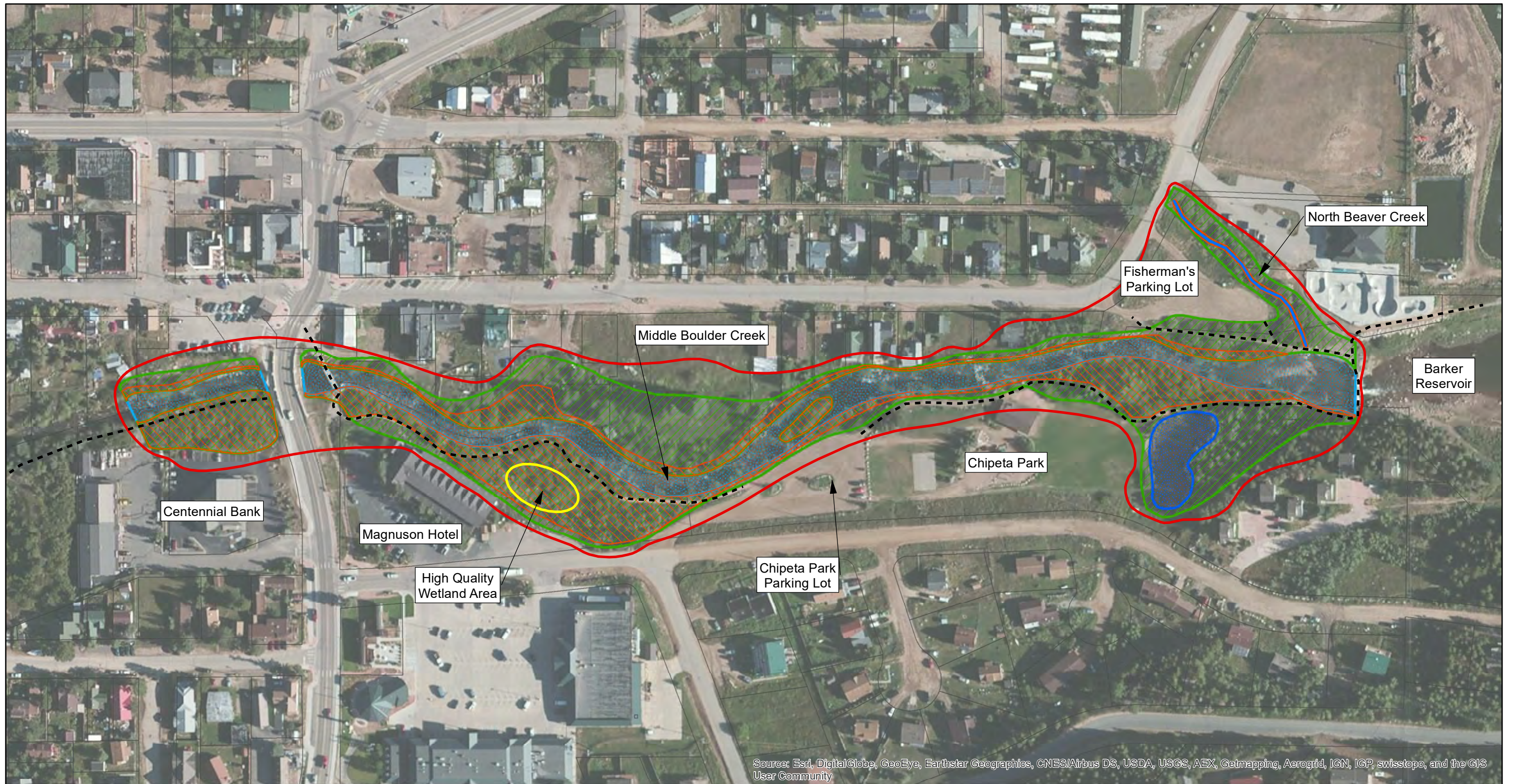
Figure 1. Project Location Map  
 Middle Boulder Creek Riparian Assessment  
 Town of Nederland, Boulder County, Colorado



Western Ecological Resource Inc.  
 711 Walnut Street  
 Boulder, CO 80302  
 303-449-9009















Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


**Legend**

- |  |  |
|--|--|
|  Project Area       | <b>Riparian/Wetland Habitat Type</b>   |
|  Parcel Boundaries  |  Wetland Habitat  |
|  North Beaver Creek |  Pond             |
|  Existing Trails    |  Riparian Habitat |
|  |  Stream           |



Scale: 1:1,800  
1 inch = 150 feet  
Date: December 2015

Figure 2. Wetland and Riparian Habitat Map  
Middle Boulder Creek Riparian Assessment  
Town of Nederland, Boulder County, Colorado

Western Ecological Resource Inc.  
711 Walnut Street  
Boulder, CO 80302  
303-449-9009 



**Legend**

- |                    |  |  |
|--------------------|--|--|
| Project Area       | <b>Restoration Enhancements</b>              | <b>Restoration Enhancements (con't)</b>      |
| Parcel Boundaries  | ST, Social Trail                             | DR, Debris Removal                           |
| North Beaver Creek | PLT, Woody Riparian Plantings                | NP, Future Nature Park                       |
| Existing Trails    | NOX, Dense Stands Noxious Weeds              | RK, Instream Rock Structure                  |
|                    | RST, Floodplain/Riparian Habitat Restoration | TRL REM, Wetland Restoration (Trail Removal) |
|                    | STA, Bank Stabilization                      |  |

Figure 3. Proposed Riparian Restoration Map  
Middle Boulder Creek Riparian Assessment  
Town of Nederland, Boulder County, Colorado

N  
  
 Scale: 1:1,800  
 1 inch = 150 feet  
 Date: December 2015

Western Ecological Resource Inc.  
 711 Walnut Street  
 Boulder, CO 80302  
 303-449-9009

## 9.0 Tables

Table 1. Wetland and Riparian Plant Species List

Scientific Name	Common Name	Family	Origin*	Wetland Status**
<b>Trees</b>				
<i>Picea engelmannii</i>	Engelmann spruce	Pinaceae	N	FAC
<i>Picea pungens</i>	Blue spruce	Pinaceae	N	FAC
<i>Pinus contorta</i> var. <i>latifolia</i>	Lodgepole pine	Pinaceae	N	FAC
<i>Populus tremuloides</i>	Quaking aspen	Salicaceae	N	FACU
<b>Shrubs</b>				
<i>Alnus incana</i> ssp. <i>tenuifolia</i>	Alder	Betulaceae	N	FACW
<i>Betula occidentalis</i> ( <i>B. fontinalis</i> )	River birch	Betulaceae	N	FACW
<i>Distegia involucrata</i> ( <i>Lonicera</i> )	Bush honeysuckle	Caprifoliaceae	N	FAC
<i>Prunus virginiana</i> var. <i>melanocarpa</i>	Native chokecherry	Rosaceae	N	FACU
<i>Ribes cereum</i>	Wax currant	Grossulariaceae	N	NL
<i>Ribes inerme</i>	Whitestem gooseberry	Grossulariaceae	N	FAC
<i>Rosa woodsii</i>	Wood rose	Rosaceae	N	FACU
<i>Rubus idaeus</i> spp. <i>melanolasius</i>	Red raspberry	Rosaceae	N	FACU
<i>Salix bebbiana</i>	Bebb willow	Salicaceae	N	FACW
<i>Salix brachycarpa</i>	Barrenground willow	Salicaceae	N	FACW
<i>Salix lasiandra</i> var. <i>caudata</i>	Whiplash willow	Salicaceae	N	FACW
<i>Salix monticola</i>	Mountain willow	Salicaceae	N	OBL
<b>Perennial Graminoids</b>				
<i>Agrostis gigantea</i> ( <i>alba</i> )	Redtop	Poaceae	I	FAC
<i>Bromus inermis</i>	Smooth brome	Poaceae	I	FAC
<i>Calamagrostis canadensis</i>	Bluejoint reedgrass	Poaceae	N	FACW
<i>Carex utriculata</i>	Beaked sedge	Cyperaceae	N	OBL
<i>Dactylis glomerata</i>	Orchardgrass	Poaceae	I	FACU
<i>Deschampsia cespitosa</i>	Tufted hairgrass	Poaceae	N	FACW
<i>Glyceria striata</i>	Fowl mannagrass	Poaceae	N	OBL
<i>Juncus arcticus</i> subsp. <i>ater</i> (= <i>J. balticus</i> )	Baltic rush	Juncaceae	N	FACW
<i>Juncus ensifolius</i>	Swordleaf rush	Juncaceae	N	FACW
<i>Phalaris arundinacea</i>	Reed Canarygrass	Poaceae	I	FACW
<i>Phleum pratense</i>	Timothy	Poaceae	I	FAC
<i>Poa palustris</i>	Fowl bluegrass	Poaceae	N	FAC
<i>Scirpus microcarpus</i>	Smallfruit bulrush	Cyperaceae	N	OBL
<b>Perennial Forbs</b>				
<i>Achillea lanulosa</i>	Yarrow	Asteraceae	N	FACU
<i>Cirsium arvense</i> ( <i>Breea</i> )	Canada thistle	Asteraceae	I+	FAC
<i>Epilobium hornemannii</i>	Hornemann willowherb	Onagraceae	N	FACW
<i>Fragaria virginiana</i> subsp. <i>glauca</i>	Mountain strawberry	Rosaceae	N	FACU
<i>Geum macrophyllum</i> var. <i>perincisum</i>	Largeleaf avens	Rosaceae	N	FAC
<i>Leucanthemum vulgare</i> ( <i>Crysanthemum leucanthemum</i> )	Ox-eye daisy	Asteraceae	I+	FACU

Table 1. Wetland and Riparian Plant Species List

Scientific Name	Common Name	Family	Origin*	Wetland Status**
<i>Maianthemum amplexicaule</i>	False Solomon's seal	Convallariaceae	N	FAC
<i>Maianthemum stellatum</i> ( <i>Smilacina stellata</i> )	Starry false Solomon seal	Convallariaceae	N	FAC
<i>Medicago sativa</i>	Alfalfa	Fabaceae	I	UPL
<i>Mentha arvensis</i>	Field mint	Lamiaceae	N	FACW
<i>Myosotis scorpioides</i>	Forget-me-not	Boraginaceae	I	FACW
<i>Petasites frigidus var. sagittatus</i>	Sweet coltsfoot	Asteraceae	N	FACW
<i>Platanthera huronensis</i>	Green bog orchid	Orchidaceae	N	OBL
<i>Pyrola rotundifolia ssp. asarifolia</i>	Roundleaf wintergreen	Pyrolaceae	N	FACU
<i>Senecio triangularis</i>	Arrowleaf groundsel	Asteraceae	N	FACW
<i>Sidalcea candida</i>	Checker mallow	Malvaceae	N	FACW
<i>Tanacetum vulgare</i>	Common tansy	Asteraceae	I+	
<i>Thalictrum sparsiflorum</i>	Fewflower meadowrue	Thalictraceae	N	FAC
<b>Ferns and Fern Allies</b>				
<i>Equisetum arvense</i>	Field horsetail	Equisetaceae	N	FAC
<b>Annual/Biennial Forbs</b>				
<i>Lactuca serriola</i>	Prickly lettuce	Asteraceae	I	FACU
<i>Matricaria perforata</i>	Scentless chamomile	Asteraceae	I+	FACU

\* Origin

N = Native

I = Introduced

I+ = Colorado State Noxious Weed

\*\* Wetland Status

OBL = Obligate Wetland

FACW = Facultative Wetland

FAC = Facultative

FACU = Facultative Upland

UPL = Obligate Upland

NO/NL = No Status in this Region

Table 2. Recommended Native Tree & Shrub Plantings

Scientific Name	Common Name	Family
<b>Trees</b>		
<i>Picea engelmannii</i>	Engelmann spruce	Pinaceae
<i>Picea pungens</i>	Blue spruce	Pinaceae
<i>Populus tremuloides</i>	Quaking aspen	Salicaceae
<i>Populus angustifolia</i>	Narrowleaf cottonwood	Salicaceae
<b>Shrubs</b>		
<i>Amelanchier alnifolia</i>	Serviceberry	Rosaceae
<i>Cornus sericea (C. stolonifera)</i>	Redosier dogwood	Cornaceae
<i>Jamesia americana</i>	American waxflower	Hydrangeaceae
<i>Mahonia repens</i>	Oregon grape	Berberidaceae
<i>Oreobatus deliciosus</i>	Boulder raspberry	Rosaceae
<i>Pentaphylloides floribunda</i>	Shrubby cinquefoil	Rosaceae
<i>Physocarpus monogynus</i>	Ninebark	Rosaceae
<i>Prunus virginiana var. melanocarpa</i>	Native chokecherry	Rosaceae
<i>Ribes aureum</i>	Yellow currant	Grossulariaceae
<i>Ribes cereum</i>	Wax currant	Grossulariaceae
<i>Rosa woodsii</i>	Wood rose	Rosaceae
<i>Salix bebbiana</i>	Bebb willow	Salicaceae
<i>Salix exigua</i>	Sandbar willow	Salicaceae
<i>Salix monticola</i>	Mountain willow	Salicaceae
<i>Sambucus microbotrys</i>	Red elderberry	Caprifoliaceae
<i>Sorbus scopulina</i>	Mountain ash	Rosaceae

## 10.0 Photographs



Photo 1. Middle Boulder Creek, looking downstream from the covered bridge.



Photo 2. Sweet coltsfoot. An uncommon plant found in the wetland northeast of the Magnuson Hotel.





**Photo 3. North Beaver Creek.**



**Photo 4. Example of one of the many social trails in the riparian habitat.**



**Photo 5. Social use of this area along Middle Boulder Creek just upstream of the weir bridge has eliminated most riparian vegetation.**



**Photo 6. Dense stands of Canada thistle, a noxious weed, along the path behind the Magnuson Hotel.**



**Photo 7. Narrow bank of riparian vegetation on the north side of Middle Boulder Creek on the bank parcel.**



**Photo 8. Lack of riparian habitat along the Chipeta Park parking lot.**



**Photo 9. Elevated fill along North Beaver Creek at Fisherman's parking lot.**



**Photo 10. Elevated fill along Middle Boulder Creek at Fisherman's parking lot.**



Photo 11. Bank instability along homes on north side of Middle Boulder Creek.



Photo 12. Rock check dam below homes pictured in Photo 11.

## Appendix A. Proper Functioning Condition Worksheet

## PFC Assessment Form (Lotic)

Name of Riparian-Wetland Area:	M	<b>Middle Boulder Creek</b>
Date:	5	September 24, 2015
ID Team Observers:		Rea Orthner, Western Ecological Resource Inc

Description of potential and rationale: Hydrologic regime _____ Stream Type(s) <u>Perennial</u> Plant communities <u>? Willow (Scrub-Shrub)</u> Other _____
---

Yes	No	N/A	<b>HYDROLOGY</b>
XX			1) Floodplain inundated in “relatively frequent events” (1-3 years). <b>Notes:</b> <i>Evidence of frequent flooding is noticeable in the riparian habitat on the south side of MBC on the bank parcel as well as in some of the low-lying riparian habitats ust north of Chipeta Park.</i>
		X	2) Beaver dams are stable. <b>Notes:</b> <i>No beaver dams observed.</i>
XX			3) Width/depth ratio, sinuosity, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region). <b>Notes:</b> <i>Generally yes for this "high energy" stream. Stream is over-widened at east end near Barker Reservoir, but likely the result of change in channel slope or slowing of water velocity.</i>
X			4) Riparian-wetland area is expanding or has achieved potential extent. <b>Notes:</b> <i>R/W appears to have achieved max extent given existing landforms. Fill on north side of MBC on bank parcel and in one area of fisherman's parking lot are limiting R/W development in these areas.</i>
X			5) Riparian impairment from the upstream or upland watershed is absent. <b>Notes:</b> <i>None Noted</i>

Yes	No	N/A	<b>VEGETATION</b>
X			6) There is adequate diversity of stabilizing riparian vegetation for recovery/maintenance. <b>Notes:</b> <i>(List plant species and note their abundance and location on the NV Riparian Plant Checklist)</i> <i>Yes, there are at least a dozen native shrubs and perennial graminoids species that have stabilizing root masses</i>
X			7) There are adequate age class(es) of stabilizing riparian vegetation for recovery/maintenance <b>Notes:</b> <i>The site is dominated by mature willows, which are long-lived and readily resprout from the base when cut. A few saplings where present, which is adequate for this system.</i>
X			8) Species present indicate maintenance (or recovery) of riparian soil moisture characteristics. <b>Notes:</b> <i>Yes, a variety of wetland and riparian plants are present indicating that the R/W habitat is in good functioning condition. The noxious weed (Cirsium arvense) and invasive plant (Phalaris arundinacea) threatened biodiversity</i>
X			9) Stabilizing plant communities capable of withstanding moderately high streamflow events are present along the streambank. <b>Notes:</b> <i>The R/W plant community with willows, sedges and rushes have deep binding root masses that are able to withstand high streamflow events.</i>
X			10) Riparian plants exhibit high vigor. <b>Notes:</b> <i>In general all riparian plants are healthy and show high vigor</i>
X			11) Adequate amount of stabilizing riparian vegetative is present to protect banks and dissipate energy during moderately high flows. <b>Notes:</b> <i>Yes, in general adequate veg is present. However several areas could use addiitonal willow plantings to provide continuous riparian habtitat for wildlife and to help stabilize banks.</i>
X			12) Plant communities are an adequate source of woody material for maintenance/recovery. <b>Notes:</b> <i>These shrubby riparian-wetaldns do not produce as much woody material as forested r-w complexes, however there is an adequate source avialble</i>

Yes	No	N/A	GEOMORPHOLOGY
X			13) Floodplain and channel characteristics (i.e., rocks, woody material, vegetation, floodplain size, overflow channels) are adequate to dissipate energy. <b>Notes:</b> <i>Yes, in general the geomorphology is appropriate for this stream system. As mentioned in #8, the floodplain is lacking in a few areas due to fill. Overall, the stream appears to be fairly well armored with cobbles and rocks.</i>
		X	14) Point bars are revegetating with stabilizing riparian plants. <b>Notes:</b> <i>No point bars were observed</i>
X			15) Streambanks are laterally stable. <b>Notes:</b> <i>this section of MBC is fairly straight, and no lateral movement or potential was observed</i>
X			16) Stream system is vertically stable [not incising]. <b>Notes:</b> <i>No head-cuts or other indicators of a stream downcutting were observed</i>
X			17) Stream is in balance with the water and sediment that is being supplied by the drainage basin (i.e., no excessive erosion or deposition). <b>Notes:</b> <i>No excessive erosion/sed was observed. However, some of the homes on the North bank of MBC may be lacking appropriate fill material to withstand the erosive forces of the stream. In addition, sedimentation was observed near the confluence with Barker Reservoir; which may due to the slowing velocity of the water when in enters the res.</i>

**SUMMARY DETERMINATION**

<p><b>Functional Rating</b>  <input checked="" type="checkbox"/> Proper Functioning Condition  <input type="checkbox"/> Functional - At Risk  <input type="checkbox"/> Nonfunctional  Rationale <i>MBC met all of criteria above</i>  <hr/> <hr/> <b>Trend for Functional - At Risk:</b>  Monitored                      Apparent  <input type="checkbox"/> Upward                      <input type="checkbox"/> Upward  <input type="checkbox"/> Downward                      <input type="checkbox"/> Downward  <input type="checkbox"/> Not Apparent                      <input type="checkbox"/> Not Apparent  Rationale _____  <hr/> <hr/> <b>Are factors preventing achievement of PFC or affecting progress towards desired condition outside the control of the manager?</b> Yes ___ No X</p>		<p><b>If yes, what are those factors?</b>  <input type="checkbox"/> Flow regulations  <input type="checkbox"/> Mining activities  <input type="checkbox"/> Upstream channel conditions  <input type="checkbox"/> Channelization  <input type="checkbox"/> Road encroachment  <input type="checkbox"/> Oil field water discharge  <input type="checkbox"/> Augmented flows  <input type="checkbox"/> Other (specify) _____</p> <p><b>Explain factors preventing achievement of PFC:</b> _____  _____  _____  _____  _____  _____</p>
---	--	---

(Revised 5/2015) (See Dickard et al. (2015) for reach information form & 6-page version with more room for notes)

A lotic riparian area is considered to be in PFC or “functioning properly when adequate vegetation, landform, or large woody debris is present to:

- dissipate stream energy associated with high waterflow, thereby reducing erosion & improving water quality;
- capture sediment and aid floodplain development;
- improve floodwater retention and ground-water recharge;
- develop root masses that stabilize streambanks against erosion;
- maintain channel characteristics.



## PFC Assessment Form (Lotic)

Name of Riparian-Wetland Area:	North Beaver Creek		
Date:	September 24, 2015	Segment/Reach ID:	
ID Team Observers:	Rea Orthner, Western Ecological Resource Inc.		

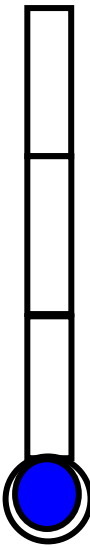
Description of potential and rationale:	
Hydrologic regime	Saturated and Seasonally Flooded
Stream Type(s)	Perennial
Plant communities	Willow Scrub-Shrub
Other	

Yes	No	N/A	<b>HYDROLOGY</b>
X			1) Floodplain inundated in “relatively frequent events” (1-3 years). <b>Notes:</b> The floodplain is relatively narrow along this section of N. Beaver Creek, but it does regularly flood. Floodplain is lacking on portions on south side adjacent to Fisherman's parking lot.
		X	2) Beaver dams are stable. <b>Notes:</b> No beaver dams occur here.
X			3) Width/depth ratio, sinuosity, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region). <b>Notes:</b> Given development constraints, yes the system seems to be in balance
	X		4) Riparian-wetland area is expanding or has achieved potential extent. <b>Notes:</b> R/W veg is lacking on south side of creek and could be improved with additional plantings.
X			5) Riparian impairment from the upstream or upland watershed is absent. <b>Notes:</b> None noted. However, creek upstream traverses through highly developed areas of town.

Yes	No	N/A	<b>VEGETATION</b>
X			6) There is adequate diversity of stabilizing riparian vegetation for recovery/maintenance. <b>Notes:</b> (List plant species and note their abundance and location on the NV Riparian Plant Checklist) There are about half a dozen R/W shrubs and perennial graminoid species here.
X			7) There are adequate age class(es) of stabilizing riparian vegetation for recovery/maintenance <b>Notes:</b> The site is dominated by mature willow, which are long-lived and easily resprout from the base when cut. There was one mature river birch, which appeared to be dead or dying. No saplings were noted for this system, however very few would be expected. Overall this is adequate.
X			8) Species present indicate maintenance (or recovery) of riparian soil moisture characteristics. <b>Notes:</b> The variety of wetland and riparian plants present are appropriate.
X			9) Stabilizing plant communities capable of withstanding moderately high streamflow events are present along the streambank. <b>Notes:</b> The R/W plant community with willows, sedges and rushes have deep binding root masses that are able to withstand high streamflow events.
X			10) Riparian plants exhibit high vigor. <b>Notes:</b> Overall, the plants exhibit high vigor. One river birch was noted to be mostly dead or dying.
X			11) Adequate amount of stabilizing riparian vegetative is present to protect banks and dissipate energy during moderately high flows. <b>Notes:</b> In general, adequate veg is present, however additional plantings are recommended on the south side of the creek and the western end.
X			12) Plant communities are an adequate source of woody material for maintenance/recovery. <b>Notes:</b> These shrubby RW communities do not produce as much large woody material as forested RW complexes, however, overall the amount is adequate.

Yes	No	N/A	GEOMORPHOLOGY
X			13) Floodplain and channel characteristics (i.e., rocks, woody material, vegetation, floodplain size, overflow channels) are adequate to dissipate energy. <b>Notes:</b> Yes, in general the geomorphology is adequate. As noted in #8, the floodplain is lacking in one area due to fill. However, the density of willows appears to be able to withstand flood events.
		X	14) Point bars are revegetating with stabilizing riparian plants. <b>Notes:</b> No point bars are present.
X			15) Streambanks are laterally stable. <b>Notes:</b> Yes. No lateral movement was observed.
X			16) Stream system is vertically stable [not incising]. <b>Notes:</b> Yes, and no headcuts were observed.
X			17) Stream is in balance with the water and sediment that is being supplied by the drainage basin (i.e., no excessive erosion or deposition). <b>Notes:</b> Yes. No excessive erosion or deposition was observed.

**SUMMARY DETERMINATION**

<p><b>Functional Rating</b>  <input checked="" type="checkbox"/> Proper Functioning Condition  <input type="checkbox"/> Functional - At Risk  <input type="checkbox"/> Nonfunctional  Rationale _____  _____</p> <p><b>Trend for Functional - At Risk:</b>  Monitored                      Apparent  <input type="checkbox"/> Upward                      <input type="checkbox"/> Upward  <input type="checkbox"/> Downward                      <input type="checkbox"/> Downward  <input type="checkbox"/> Not Apparent                      <input type="checkbox"/> Not Apparent  Rationale _____  _____</p> <p><b>Are factors preventing achievement of PFC or affecting progress towards desired condition outside the control of the manager?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	 <p>PFC  FAR  NF</p>	<p><b>If yes, what are those factors?</b>  <input type="checkbox"/> Flow regulations  <input type="checkbox"/> Mining activities  <input type="checkbox"/> Upstream channel conditions  <input type="checkbox"/> Channelization  <input type="checkbox"/> Road encroachment  <input type="checkbox"/> Oil field water discharge  <input type="checkbox"/> Augmented flows  <input type="checkbox"/> Other (specify) _____</p> <p><b>Explain factors preventing achievement of PFC:</b> _____  _____  _____  _____  _____  _____</p>
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(Revised 5/2015) (See Dickard et al. (2015) for reach information form & 6-page version with more room for notes)

A lotic riparian area is considered to be in PFC or “functioning properly when adequate vegetation, landform, or large woody debris is present to:

- dissipate stream energy associated with high waterflow, thereby reducing erosion & improving water quality;
- capture sediment and aid floodplain development;
- improve floodwater retention and ground-water recharge;
- develop root masses that stabilize streambanks against erosion;
- maintain channel characteristics.