

Section 8 – Technical Support Appendices

Appendix 8.G

Effluent Limits (Existing Wastewater Treatment Works)

The current WWTP discharge permit (effective August 1, 2002) is enclosed.

STATE OF COLORADO

Bill Owens, Governor
Jane E. Norton, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department
of Public Health
and Environment

June 21, 2002

Ralph Mullinix, Director W & P
City of Loveland
200 North Wilson Avenue
Loveland, CO 80537-6017

City of Loveland
Water & Power

JUL 01 2002

RE: Issued Permit
Permit Number: CO-0026701
Larimer County

Dear Mr. Mullinix:

Enclosed please find a copy of the permit that was issued under the Colorado Water Quality Control Act. Your discharge permit requires that specific actions be performed at designated times. You are legally obligated to comply with all terms and conditions of your permit. It is especially important to note the "EFFECTIVE DATE OF PERMIT", not the "DATE SIGNED", located in the lower right hand corner of page 1, of your permit. It is illegal to discharge per the conditions of this permit until that date.

Please read the permit and if you have any questions contact me at (303) 692-3599.

Sincerely,

Darlene Casey, Program Assistant
Water Quality Protection Section
WATER QUALITY CONTROL DIVISION

Enclosure

xc: Bruce Kent, Permit Team, Environmental Protection Agency (8P2W-P)
Regional Council of Government
Local County Health Department
Tom Armitage, D.E., Technical Services Unit, WQCD
Permit Fee Files

/dc

issued

COLORADO DISCHARGE PERMIT SYSTEM (CDPS)
SUMMARY OF RATIONALE
CITY OF LOVELAND
CDPS PERMIT NUMBER CO-0026701, LARIMER COUNTY

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I. TYPE OF PERMIT Fifth Renewal

II. FACILITY INFORMATION

A. Facility Type: Domestic - Major Municipal, Mechanical Plant
Fee Category: Category 21, Subcategory 7
Category Flow Range: 2.5 MGD up to 9.99 MGD
Annual Fee: \$5,581

B. Legal Contact: Ralph Mullinix, Director of Power and Water
City of Loveland
200 North Wilson Avenue
Loveland, CO 80537
(970) 962-3000

C. Facility Contact: Johnny Tuxhorn, Operator
City of Loveland
200 North Wilson Avenue
Loveland, CO 80537
(970) 962-2570

D. Facility Location: SE ¼, Section 19, T5N, R68W, 6th P.M. at 920 South Boise, Loveland, Colorado

E. Discharge Point: 001A, following chlorination, to the Big Thompson River.

III. RECEIVING STREAM

A. Identification, Classification, and Standards

FABL Environmental Regulatory Specialists, Inc has performed an assessment of the stream standards, low flow data, and ambient stream data for the Water Quality Control Division, and determined the assimilative capacities of this water body for the pollutants of concern. The Permits Unit has reviewed the assimilative capacities and determined the appropriate water quality based permit limitations. This information can be found in Appendix A and Table VI- 1 of the rationale.

IV. FACILITIES EVALUATION

A. Infiltration/Inflow (I/I)

The City is currently not performing any I/I studies. The City has completed a comprehensive Water and Wastewater Master Plan Update. The plan reviewed the complete sewer system to ensure it was capable of handling the current and future flows expected from new development, including I/I. Additionally, the City is implementing a five-year program to reduce I/I. The program involves going to older areas of the City and physically cutting out and plugging old abandoned taps. It is believed that these taps were the source of a portion of the I/I problems.

SUED: June 21, 2002 EFFECTIVE: August 1, 2002 EXPIRATION: July 31, 2007

B. Lift Stations

Table IV-1 summarizes the information available on the lift stations in the service area.

Table IV-1 -- Lift Station Summary

Station Name	Well Volume	# of Pumps and Capacities (gpm and hp)	% Capacity (Based on Peak flow)
Fire Station #2/Taft	9,675	2 @ 10 hp/600 gpm	*
Barberry (Cashway Lumber)	338,650	2 @ 5 hp/70 gpm	50
Lakeside Terrace	5,830	2 @ 7.5 hp/100 gpm	50
Bus Barn (North Lake Estates)	7,640	2 @ 5 hp/125 gpm	*
West 29th Street	8,395	2 @ 5 hp/125 gpm	80
North Horsetooth	7,250	2 @ 10 hp/386 gpm	48
South Horsetooth	19,825	2 @ 20 hp/1,100 gpm	60
South Side	31,050	2 @ 40 hp/1,859 gpm	<10
Boyd Lake	4,335	2 @ 5 hp/150 gpm	*
Jellystone	24,890	2 @ 15hp/55 gpm	100
Boedecker	3,085	2 @ 5 hp/80 gpm	8
Mariana Cove	7,520	2 @ 3 hp/42 gpm	*
Lakes Place #4	9,960	2 @ 3 hp/390 gpm	*

These lift stations are not expected to be at capacity for the next two years.

C. Facility Modifications and Resulting Changes in Capacity

The permittee has not performed any construction at this facility that would change the hydraulic capacity of 8.0 MGD or the organic capacity of 12,500 lbs. BOD₅/day, which were specified in the rationale for the previous permit. A 24-inch Parshall flume measures influent flow with an ultrasonic open channel flow transmitter and a continuous flow recorder seven-day chart and totalizer. Plant effluent is assumed to equal plant effluent (see previous rationale for an explanation).

D. Biosolids Treatment and Disposal

Biosolids are treated in two anaerobic digesters for a total of between 45 and 90 days.

Biosolids disposal is contracted to Liquid Waste Management. All biosolids disposal must be conducted in compliance with all Federal, State, and local regulations.

V. PERFORMANCE HISTORY

A. Monitoring Data

- Table V-1 summarizes the effluent data reported on the monthly Discharge Monitoring Reports (DMR's) for the City of Loveland facility from December 1999 through December 2001. For parameters where additional data was considered, data is reported with the period of that data.

Table V-1 -- Self-Monitoring Results

Parameter	# Samples or Reporting Periods	Reported Concentrations Average/Minimum/Maximum	Previous Permit Limit	No. of Limit Excursions
Influent Flow, MGD	24	6.22/5.2/8.8	8.0*	N/A
Effluent Flow, MGD	24	6.22/5.2/8.8	8.0	1
Effluent BOD ₅ , mg/l	24	225/129/293	N/A	N/A

Fluent BOD ₅ mg/l	24	262/200/307	12,500, lbs/day *	N/A
1 BOD ₅ , mg/l	24	12.83/6.0/27	30	0
BOD ₅ Removal, %	24	95.25/91/97	85	0
Fluent TSS, mg/l	24	218/22/258	N/A	N/A
Fluent TSS, mg/l	24	8.04/4.0/19	30	0
TSS Removal, %	24	96.58/91/99	85	0
fecal Coliform, #/100 ml	24	3,366/3.0/64,478	4,600	1
Total Residual Chlorine, mg/l	24	0/0/0	0.02	0
Oil & Grease, mg/l	24	0/0/0	10	0
pH, s.u.	24	-/6.5/7.4	6.5 - 9.0	0
Ammonia, Total, mg/l as N				
January	2	8.3/2.1/14.5	79.7	0
February	2	5.7/1.3/10.1	58.3	0
March	2	13.35/0.9/25.8	48.6	0
April	2	0.95/0.9/1.0	55.1	0
May	2	0.22/0.15/0.29	42.6	0
June	2	0.2/0.2/0.2	22.9	0
July	2	0.22/0.1/0.34	18.4	0
August	2	0.155/0.11/0.2	22.5	0
September	2	0.15/0.1/0.2	29.3	0
October	2	0.15/0.1/0.2	46.4	0
November	2	0.4/0.3/0.5	47.8	0
December	1	4.4/4.4/4.4	65.9	0
Chromium, hexavalent, D, µg/l	24	3.31/1.4/8.0	12.7	0
Cyanide, WAD, µg/l	24	1.5/0.2/4.10	30	0
Mercury, Total, µg/l	24	0/0/0	0.01	0
Copper PD, µg/l	8	10.32/3.8/30.95	N/A	N/A
Lead, PD, µg/l	8	1.54/0.3/3.73	N/A	N/A
Benium, PD, µg/l	8	0/0/0	N/A	N/A
BT, Chronic (%)				
Periodaphnia, (48 hr.)				
Significant Diff.	8	>100/>100/>100	87.5	0
LC ₂₅	8	89/12.5/>100	87.5	1
Head Minnows (96 hr.)				
Significant Diff.	8	>100/>100/>100	87.5	0
LC ₂₅	8	70.3/12.5/>100	87.5	3

Potentially Dissolved TR Total Recoverable D Dissolved * This is design capacity, and not a limit.

2. State sampling results for the Loveland treatment plant, for the previous 36-month are summarized in the following table.

Table V-2 - State Sampling Results

	Flow MGD	Temp °F	pH su	DO mg/l	TRC mg/l	O & G mg/l	F. coli #/100 ml	BOD ₅ mg/l	TSS mg/l	NH ₃ mg/l
1/1/99	6.49	59.0	7.24	6.6	0.08	< 10	160,000 (MPN)	5	<10	<1.0
1/12/01	5.03	57.0	NA	7.57	<0.05	< 10	3,000 (MPN)	3	<10	1.0
1/27/02	6.39	50.0	7.23	NA	<0.05	< 10	24,000 (MPN)	10	<10	7.1

data not available or data reliability was in question.

3. Compliance With Terms and Conditions of Previous Permit

The data shown in the preceding tables indicates that the City of Loveland facility has maintained compliance with the previous permit with the exception of a one-time violation of limits for fecal coliform and flow. The failures in IC25 for Ceriodaphnia and Fathead occurred; however, there were no exceedences with the statistically significant difference portion of the each species for WET. Both the Stat Sig. and the IC₂₅ need to fail at the same time in order for a violation of the WET limitation to occur (as per Part I.B.4.b.).

4. TERMS AND CONDITIONS OF PERMIT

A. Determination of Effluent Limitations

1. Effluent Limitations - The following limits will apply and are discussed in Sections VI-A.2 and VI-A.3.

Table VI-1 -- Effluent Limits

Parameter	Limit	Rationale
Flow, MGD	8.0 "	Design Capacity
BOD ₅ , mg/l	30/45 "	State Effluent Regulations
TSS, mg/l	30/45 "	State Effluent Regulations
Fecal Coliform, No/100 ml		Water Quality Standards
Through June 30, 2004	2,318/4,636 "	Temporary Modification (Year-round)
After July 1, 2004	226/452 "	Seasonal Standards (May 1 -- October 15)
	2,318/4,636 "	Seasonal Standards (October 16 -- April 30)
Total Residual Chlorine, mg/l	0.013/0.021 "	Water Quality Standards
pH, s.u.	6.5-9.0 "	Water Quality Standards
Oil and Grease, mg/l	10 "	State Effluent Regulations
Total Ammonia (as N), mg/l		
Through September 30, 2004		
January	79.7/Report "	
February	58.3/Report "	
March	48.6/Report "	
April	55.1/Report "	
May	21/27 "	
June	22/25 "	
July	23/30 "	
August	20/30 "	
September	17/25 "	
October	46.4/Report "	
November	47.8/Report "	
December	65.9/Report "	
As of October 1, 2004		Water Quality Standards
January	Report/29 "	
February	Report/26 "	
March	Report/27 "	
April	Report/29 "	
May	21/27 "	
June	22/25 "	
July	23/30 "	
August	20/30 "	
September	17/25 "	
October	25/28 "	
November	Report/29 "	
December	Report/27 "	

Cyanide, Weak Acid Dissociable, µg/l	5.6 ^c	Water Quality Standards
Chromium, Hex, Dissolved, µg/l	13/18 ^f	Water Quality Standards
Mercury, Total, µg/l	Report ^a	Water Quality Standards
Copper, Potentially Dissolved, µg/l	Report ^a	Water Quality Standards
Selenium, Potentially Dissolved, µg/l	Report ^a	Water Quality Standards
WET, Chronic Lethality	Statistical Difference	State Permit Regulations

^a 30-day average ^b 30-day average/7-day average ^c Daily Max ^d Min-Max ^e 30-day geometric mean/7-day geometric mean ^f 30-day average/daily max

1. TERMS AND CONDITIONS OF PERMIT

A. Determination of Effluent Limitations

2. Discussion of Effluent Limitations

- BOD₅ and TSS - BOD₅ and TSS limits are taken from State Effluent Regulations. No violations of the dissolved oxygen standard are expected due to this discharge.
- pH and Oil and Grease - These parameters are limited by Water Quality Standards and State Effluent Regulations, respectively.
- Pollutants Limited by Water Quality Standards - FABL Environmental Regulatory Specialists, Inc. has performed an assessment of potential water quality standards-based assimilative capacities for the Water Quality Control Division and made a preliminary determination of the assimilative capacity of the receiving stream for the pollutants of concern. This assessment can be found in Appendix A of the rationale. The Permits Unit evaluated the assimilative capacities and has made a determination as to whether there is a reasonable potential for the facility discharge to cause or contribute to an exceedence of a stream standard. If there is a reasonable potential for the discharge to contribute to an exceedence, effluent limits are included in the permit.
- Fecal Coliform, Total Residual Chlorine, and Total Ammonia - Fecal coliform, total residual chlorine, and total ammonia limits are discussed in Appendix A of the rationale. The year-round temporary modification to the fecal coliform standard will expire on June 30, 2004. This facility will not be able to meet the new water quality based limitation for fecal coliform that goes into effect after this date. Therefore, a compliance schedule will be included in the permit for facilities to be built to meet this limitation.

A compliance schedule is also being added in order to meet the total ammonia limitations. The schedule is necessary because of the more stringent monthly total ammonia limitations and the imposition of the daily maximum limitations. While data shows that the limitation should be met, it should be noted that these results are not necessarily reflective of what could occur if the plant were to operate close to its organic capacity. Preliminary data reviewed of the plant operations notes that in the worst case scenario, specifically during the winter months of October through April, the plant could potentially violate its effluent limitations. Since the data is preliminary, the City has requested a compliance schedule to collect more process-related data before the limitations becoming effective. In addition, the City has requested that the schedule include time to make modifications should the data show that they are necessary to be able to consistently meet the effluent limitations. The schedule will provide the City a year, until June 30, 2003 to collect the data and determine if additional modifications are necessary. Should data show that the limitations can not be met without additional construction, an additional 15 months will be provided to the City to design and construct such modifications. During this time, the old permit limitations shall apply from October 1 through April 30. The new limitations will be applicable from May 1 through September 30. Should the results of the process evaluation show that effluent limitations can be met without further modifications, the permit will be amended to make the effluent limitations effective.

The permittee used a site-specific ammonia loss rate study that was developed in 1989. If the permittee intends to rely on a site-specific loss rate study for the next permit renewal, the study will need to be updated and re-submitted to the Division with the next permit renewal application.

- Antidegradation - FABL Environmental Regulatory Specialists, Inc. has performed an assessment of the water quality based permit limitations. This assessment was provided to the permit drafter and can be found in Appendix A

of the rationale. An antidegradation review was not necessary because the receiving water is designated Use Protected.

- f. Economic Reasonableness Evaluation - The Water Quality Control Commission, during their proceedings to adopt the Classification and Numeric Standards for the South Platte River Basin, considered the economic reasonableness of imposing the classification and standards listed in Appendix A of this rationale. Since this is not a new discharger, and no new information has been presented regarding the classifications and standards, the water quality standard-based effluent limitations of this permit are determined to be reasonably related to the economic, environmental, public health and energy impacts to the public and affected persons in accordance with Section 61.11 of the Colorado Discharge Permit System Regulations. If the permittee disagrees with this finding, pursuant to 61.11(b)(ii), the permittee should submit all pertinent information to the Division during the public notice period.

B. Monitoring

1. Influent and Effluent Monitoring - Influent and effluent monitoring will be required as shown in Table VI-2. Refer to the permit for locations of monitoring points.

Table VI-2 -- Influent and Effluent Monitoring Requirements

Parameter	Measurement Frequency	Sample Type
Influent Flow, MGD	Continuous	Recorder *
Influent BOD ₅ , mg/l (lb/day)	5x/Week	Composite
Influent Total Suspended Solids, mg/l	5x/Week	Composite
Effluent Flow, MGD	Daily	Instantaneous
Effluent BOD ₅ , mg/l	5x/Week	Composite
Effluent Total Suspended Solids, mg/l	5x/Week	Composite
Effluent Fecal Coliform, no./100 ml	5x/Week	Grab
Effluent Total Residual Chlorine, mg/l	4x/Day	Grab
Effluent pH, s.u.	Daily	Grab
Effluent Oil & Grease, mg/l	Daily	Visual**
Effluent Total Ammonia as N, mg/l	Weekly	Composite
Cyanide, Weak Acid Dissociable, ug/l	Weekly	Grab
Chromium, Hexavalent, Dissolved, ug/l	Weekly	Grab
Mercury, Total, ug/l	Weekly	Composite
Copper, Potentially Dissolved, ug/l	Quarterly	Composite
Selenium, Potentially Dissolved, ug/l	Quarterly	Composite
Whole Effluent Toxicity, Chronic	Quarterly	3 Composites/Test

*Report both influent and effluent flow. See Footnote f) of the permit.

**If a visible sheen is noted, a grab sample shall be collected and analyzed for oil and grease. The results are to be reported on the DMR under parameter 00556.

2. Biosolids Monitoring and Reporting: Facilities that practice or contract any methods of biosolids disposal, including beneficial use, land filling, or any combination of disposal methods, are required to determine and report the annual rate of biosolids produced. Annual biosolids production and a description of biosolids disposal practices are to be included in the annual report. Please see Part I, Section D.3 of the permit for more information. Additional requirements apply if land disposal for beneficial use is practiced and these requirements follow Table VI-5.

Table VI-5 -- Biosolids Monitoring Requirements

Biosolids Parameter	Measurement Frequency	Sample Type
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Total Solids, % dry wt.	Monthly	Sludge Composite
Volatile Solids, % of total solids	Monthly	Sludge Composite
Volume of biosolids disposed of, gals.	Continuous	Calculated
Dry Weight of biosolids disposed, lbs.	Continuous	Calculated

The discharge of solid waste to land for disposal is regulated by the Colorado Solid Wastes Disposal Sites and Facilities Act (30-20, Part 1 C.R.S. 1973) Biosolids Regulations, Regulation Number 64, Section 30-20-102(6) of the Act provides an exemption from the Certificate of Designation requirement for biosolids which are used in a beneficial manner and where the disposal of such biosolids is designated as meeting all applicable regulations of the Department, including the Biosolids Regulations.

The City of Loveland is a "Treatment Works Treating Domestic Sewage" (TWTDS) as that term is defined in the Biosolids Regulations, '64.9. As such, the requirements of the Biosolids Regulations are applicable to biosolids produced at this WWTP and which are land applied for beneficial use. The requirements imposed in this permit will be consistent with the Biosolids Regulations. See Parts I.A.9. and I.B.3. of the permit for specific requirements.

There are pathogen reduction and vector attraction reduction alternatives, in addition to those identified in Part I.A.9.b. and c. of the permit which may be allowed per the Colorado Biosolids Regulations, 64.12.B and C. If the permittee intends to use one of these alternatives, the Division and EPA must be informed at least 30 days before its use. This change may be made without additional public notice.

Requirements of the Biosolids Regulations are in addition to the monitoring requirements noted above.

3. Pretreatment Program - The permittee has been delegated primary responsibility for enforcing against discharges prohibited by 40 CFR 403.5, and applying and enforcing any National Pretreatment Standards established by the Environmental Protection Agency in accordance with Section 307(b) and (c) of the Act.

As part of the pretreatment program, the permittee is responsible for an annual report describing their pretreatment activities over the previous calendar year. As part of the annual report, the permittee is responsible for testing and reporting the results of influent and effluent sampling of metals, priority pollutants, and cyanide.

4. Whole Effluent Toxicity (WET) Testing - Biomonitoring

a) Purpose of WET Testing: The Water Quality Control Division has established the use of WET testing as a method for identifying and controlling toxic discharges from wastewater treatment facilities. WET testing is being utilized as a means to ensure that there are no discharges of pollutants "in amounts, concentrations or combinations which are harmful to the beneficial uses or toxic to humans, animals, plants, or aquatic life" as required by Section 31.11 (1) of the Basic Standards and Methodologies for Surface Waters.

b) Instream Waste Concentration (IWC): Where monitoring or limitations for WET are deemed appropriate by the Division, chronic instream dilution as represented by the chronic IWC is critical in determining whether acute or chronic conditions shall apply. According to the Colorado Water Quality Control Division Biomonitoring Guidance Document, dated July 1, 1993, for those discharges where the chronic IWC is greater than (>) 9.1% and the receiving stream has a Class 1 Aquatic Life use or Class 2 Aquatic Life use with all of the appropriate aquatic life numeric standards, chronic conditions apply. Where the chronic IWC is less than or equal to (\leq) 9.1, or the stream is not classified as described above, acute conditions apply. The chronic IWC is determined using the following equation:

$$IWC = [Facility Flow (FF) / (Stream Chronic Low Flow (annual) + FF)] \times 100\%$$

The flows and corresponding IWC for the appropriate discharge point are:

Discharge Point	Chronic Low Flow, 30L3, (cfs)	Facility Design Flow, (cfs)	IWC, (%)
001	2.0	12.0	86

The IWC for this permit is 86%, which represents an instream wastewater concentration of 86% effluent and 14%

receiving stream.

- c) Chronic WET Limitations: The City of Loveland has a large service area, which services both commercial and industrial taps. The presence of these commercial/industrial dischargers creates the potential for effluent toxicity, which could interfere with compliance with stream standards. The Division believes there is reasonable potential for the discharge to interfere with attainment of applicable water quality classifications or standards. Because of this condition, the chronic limit has been incorporated into the permit and becomes effective on the date of issue of the permit. The results of the testing are to be reported on Division approved forms.

If a level of chronic toxicity occurs, such that there is a statistically significant difference in the lethality (at the 95% confidence level) between the control and any effluent concentration less than or equal to the Instream Waste Concentration (IWC) the permittee will be required to follow the automatic compliance schedule identified in Part I.B. of the permit, if the observed toxicity is due to organism lethality. Only an exceedence of the limitation specified in Part I.A. 2. will trigger the requirement for conducting the automatic compliance schedule identified in Part I.B. of the permit.

- d) General Information: The permittee should read the WET testing sections of Part I.A. and I.B. of the permit carefully. The permit outlines the test requirements and the required follow-up actions the permittee must take to resolve a toxicity incident. The permittee should read, along with the documents listed in Part I.B. of the permit, the Colorado Water Quality Control Division Biomonitoring Guidance Document, dated July 1, 1993. This document outlines the criteria used by the Division in such areas as granting relief from WET testing, modifying test methods and changing test species. The permittee should be aware that some of the conditions outlined above may be subject to change if the facility experiences a change in discharge, as outlined in Part II.A.1 of the permit. Such changes shall be reported to the Division immediately.

C. Reporting

1. Discharge Monitoring Report - The permittee must submit a Discharge Monitoring Report (DMR) monthly to the Division. This report will contain a summary of the test results for parameters shown in Table VI-2 and Part I, Section B of the permit. The DMR form shall be completed and submitted in accordance with Part I, Section B.2 of the permit.
2. Annual Report - The permittee will be required to submit an annual report for Biosolids only. An outline of the topics to be covered in the report is included in Part I, Section D.3 of the permit.
3. Special Reports - Special reports are required in the event of a spill, bypass, or other noncompliance. Please refer to Part I, Section D.4 of the permit for reporting requirements.

D. Additional Terms and Conditions

1. Signatory Requirements - Signatory requirements for reports and submittals are discussed in Part I, Section D.1 of the permit.
2. Compliance Schedules
 - a) Construction to Fecal Coliform Limitations - In order to meet the fecal coliform limitation, the following schedule for construction will be included in the permit.

Code	Event	Permit Citation	Due Date
90908	Submit plans and specifications for construction of ultraviolet disinfection facilities to meet the final fecal coliform limitation.	Part I.A.7	06/30/03
05599	Complete construction of ultraviolet disinfection facilities, which will allow the permittee to meet the final fecal coliform limitation.	Part I.A.7.	06/30/04
909089	Complete a process evaluation for the plant on its ability to meet the total ammonia effluent limitations and submit a report documenting if additional modifications are necessary.	Part I.A.7	06/30/03
05599	Complete construction of modifications to the wastewater treatment plant to meet the total ammonia limitations and meet the total ammonia limitations	Part I.A.7	10/01/04

E. Reopener, Permit Renewal, and Fee Information

- 1. The permit may be modified, suspended, or revoked in whole or in part during its term for reasons outlined in Part II, Section B.8 of the permit.*
- 2. Requirements for permit renewal are discussed in Part II, Section B.9 of the permit.*
- 3. Permit fee requirements are outlined in Part II, Section B.11 of the permit. An annual fee must be paid to the Water Quality Control Division to maintain the status of your permit.*

I. REFERENCES

- A. Colorado Department of Public Health and Environment, Water Quality Control Division Files.*
- B. "Design Criteria for Wastewater Treatment Works," Colorado Water Quality Control Commission, December 1994.*
- C. "Basic Standards and Methodologies for Surface Water," Regulation No. 31, Colorado Water Quality Control Commission, effective March 02, 1999.*
- D. "Classification and Numeric Standards South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky River Basin," Regulation No. 38, Colorado Water Quality Control Commission, effective January 30, 2002.*
- E. "Colorado Discharge Permit System Regulations," Regulation No. 61, Colorado Water Quality Control Commission, effective December 30, 2001.*
- F. "Regulations for Effluent Limitations," Regulation No. 62, Colorado Water Quality Control Commission, effective August 30, 1997.*
- "Pretreatment Regulations," Regulation No. 63, Colorado Water Quality Control Commission, effective April 9, 2001.*
- H. "Biosolids Regulation," Regulation No. 64, Colorado Water Quality Control Commission, effective March 1, 2001.*
- I. "Colorado Total Maximum Daily Load and Waste load Allocation Guidance," Colorado Department of Public Health and Environment, Water Quality Control Division, effective November 1991.*

*Christopher L. Gates
January 24, 2002*

CHANGES MADE FOLLOWING THE FIRST PUBLIC NOTICE

The permittee had the following comments:

Rationale and Permit

Weland indicated that they did not have a 24-inch Parshall flume to measure plant effluent. The description was changed to indicate that flow measurement was taken from a calculation from the influent flow.

There were some inconsistencies with the self-monitoring results that needed clarification. The period was corrected to show that a two-year period from December 1999 through December 2001 was examined.

Weland indicated that State sampling was not recorded during the 36-month period. In fact, there was some sampling performed and a table (Table V-2) was inserted to indicate the reporting performed by the State.

Mercury limitations in Table VI-1 were inconsistent between rationale and permit. It is supposed to be listed as total mercury, not eventually dissolved. There will not be a limit imposed at this time, because the permittee has demonstrated in a PQL study, that a limit is not necessary. However, a new analytical method, Method 1631, for total mercury has been approved by the EPA and adopted by the Division. Until recently there has not been an effective method for monitoring low-level mercury concentrations in either the stream or the facility effluent. Therefore, the mercury load to the receiving stream from the facility's discharge cannot be determined at this time. To ensure that appropriate mercury limits are developed in the future, for the term of this permit, the permittee will be required to monitor

al mercury concentrations in the effluent using the new analytical test. The City voiced concerns with the implementation of the new monitoring method because of the limited number of laboratories that are capable of performing the test. No state laboratories, including Colorado Department of Public Health and Environment laboratory are currently capable of performing this method.

the permittee requested a compliance schedule for fecal coliform; this was placed in both the permit and the rationale.

the permittee requested relief from monitoring for lead. Because previous self-monitoring for lead shows no reasonable potential for lead, and that monitoring is being performed for the pretreatment program, it will no longer be a requirement under the normal monitoring conditions of this permit.

was requested that the limit applied for cyanide be left at the existing limit of 30 mg/l for WAD and not the 5.6 mg/l for free cyanide. As is stated in the Footnotes of the permit that, "...if the analytical results are less than the detection limit, the value will be considered zero..." The permittee will report less than 30 mg/l on the DMR, even though the limit is 5.6 mg/l. This limitation will remain in the permit.

the chlorine limit is shown as 0.013/0.0221 mg/l. This is less than the detection limit of 0.05 mg/l. The permittee requests the limit be set at the detection limit. The limit will stand because it is stated in g) of the Footnotes of the permit that, "...if the analytical results are less than the detection limit, the value will be considered zero..." Additionally, the permittee requests that the measurement frequency for TRC be what it was in the previous permit of 3 times per day, and not the four times per day. This was verified with the previous permit, and it was in fact four times per day, and not 3x/day. It is the Division's policy to require this monitoring frequency for flows over 5 MGD to less than or equal to 10 MGD.

the permittee requests relief from whole effluent toxicity monitoring from quarterly to annually. This will be granted only if the permittee accepts more stringent ammonia limitations. This is based on the Division's past experience, that has demonstrated that at the ammonia concentrations that are equivalent to the limits set forth in this revised permit have reasonable potential for effluent toxicity, which could interfere with attainment of applicable water quality classifications or standards. Changes were made in the WET language to reflect that the city is required to meet the WET effluent limitations immediately.

the permittee requested that the sample frequency be changed from once per haul event to quarterly for Biosolids monitoring. This was done to reflect previous monitoring requirements set forth during the last permit renewal.

the City objected to the inclusion of language in Part I.A.8.d of the permit, which requires sampling of biosolids for pollutants listed in Tables II, III, and V. Specifically the requirements for monitoring of total cyanide, total phenols, and the volatile organics. The City's concerns are related to the fact that there are no approved methods under 40 CFR 503 for these parameters and that there are no limitations for such pollutants in 40 CFR 503. The City has agreed to allow the language in the permit, but reserves the ability to reopen this issue in the future.

there were other comments about typographical errors that were considered by the Division. Additionally, the permittee misunderstood the added language discussing pretreatment. This was further clarified in the permit.

the following are comments made by the permittee about the aforementioned limits and the water quality assessment (Appendix A) used to determine the limits that are applied.

the permittee indicates that a regression analysis should be performed to determine the hardness during low flow conditions.

the regression analysis has been completed, which has resulted in the use of a maximum hardness of 400 mg/l when determining TVS-based standards. The resulting calculations in the WQA have been revised to reflect these increased TVS-based standards.

the permittee indicates that ambient water quality data for the WQCD station 114 should not be used due to its age. The permittee further indicated that ambient water quality data through December 2001 were available through a City of Loveland study.

data from WQCD station 114 were used only for total ammonia and for fecal coliform, in the absence of data for these parameters in the specific forms. However, based on the request by the permittee, the WQA has been modified and dissolved ammonia data based on the City of Loveland study has been used as reflective of total ammonia ambient water quality, and the total coliform data based on the City of Loveland study has been used as reflective of fecal coliform ambient water quality.

the permittee indicates that the USGS station number used in the low flow analysis was incorrectly labeled as 06741500, and should be changed to 06741510.

the station number has been corrected to 06741510.

The permittee requests that the TVS equations for cadmium and lead be verified.

January 30, 2002, version of the Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin contained typographical errors for several TVS equations including cadmium, lead, nickel, and zinc. Because a technical correction is expected soon, the corrected equations, not the equations as written, were used in the WQA. The permittee is referred to Regulation 31 for a copy of the correct equations.

The permittee requests that the low flows for January through March be verified.

These have been verified. The low flows used in the WQA were correct.

The permittee requests a justification as to why the default ammonia loss rate used in the ammonia analysis was 6.0/day versus 16/day, which was the value used by the WQCD in previous analyses for the City of Loveland. The permittee also requests a justification as to why effluent temperature data for another facility were used when data from the City of Loveland are available and can be used.

The WQCD requested and received copies of the effluent temperature data and these data were used to revise the ammonia model.

Stream-specific ammonia loss rates were calculated by the permittee and submitted for analysis by the WQCD. This supported the ammonia loss rate of 16.0/day and was incorporated into the monitoring requirements for ammonia and an amendment to Appendix A is provided.

However, the data used in this renewal was from a study done in 1989. It will be the City's responsibility, to provide the Division with an updated ammonia loss rate study for the next permit renewal.

The City has requested a compliance schedule be included in the permit to allow them to determine if the total ammonia limitations can be met. The Division has granted this request. However, the quarterly sampling for WET should represent the ammonia concentrations that are measured in the effluent for during that quarter. Given that, the City should note that toxicity caused by ammonia is known to occur at concentrations equal to the interim total ammonia effluent limitations for October through April included in conjunction with the compliance schedule for total ammonia.

The City voiced concerns with the data used in the Water Quality Assessment for Mercury. As discussed in a meeting on April 25, 2002 with CDPHE the City noted that the data supplied by the city was not accurate. The data reflects values that were below the method detection limitation. These values were "calculated" by the analytical equipment used to measure total mercury and do not represent actual levels of total mercury. The City noted that there are several values that are higher than the method detection limitation for mercury. However, it is believed that these values may be subject to interference and should not be considered as factual. They are all below the PQL determined for the wastewater treatment plant discharge, and the City believes it is likely that these analyses would be subject to the same types of interference noted in the wastewater treatment plant's effluent. It would appear additional monitoring is necessary before listing of the segment on the 303(d) list for total mercury exceedences. The city of Loveland will continue to monitor the stream for total mercury.

The EPA had the following comments:

The water quality assessment indicates acute assimilative capacities for ammonia nitrogen in the Big Thompson River are at a concentration that would be expected in the City of Loveland's WWTF discharge in all months of the year except July and August. The discharge would have reasonable potential for causing an exceedence of the acute unionized ammonia water quality standard and therefore the permit must contain limits that protect the standard.

The new water quality assessment and the permit have monitoring requirements for the months of the year for both acute and chronic except where the acute limits were lower than the chronic limits. These were set as a 'report only' for 30-day average for January through March, and November and December.

Christopher L. Gates
June 4, 2002

APPENDIX A
WATER QUALITY ASSESSMENT
THE BIG THOMPSON RIVER
CITY OF LOVELAND WWTF

Table A-1
Assessment Summary

Name of Facility	City of Loveland WWTF
CDPS number	CO-0026701
WBID - Stream Segment	South Platte River Basin, Big Thompson River Sub-basin, Stream Segment 04c: Mainstem of the Big Thompson River from County Road 11H to I-25. COSPBT04c
Classifications	Warm Water Aquatic Life Class 2 Class 1a Recreation (5/1 through 10/15) Class 2 Recreation (10/16 through 4/30) Agriculture
Designation	Use Protected

I. Introduction

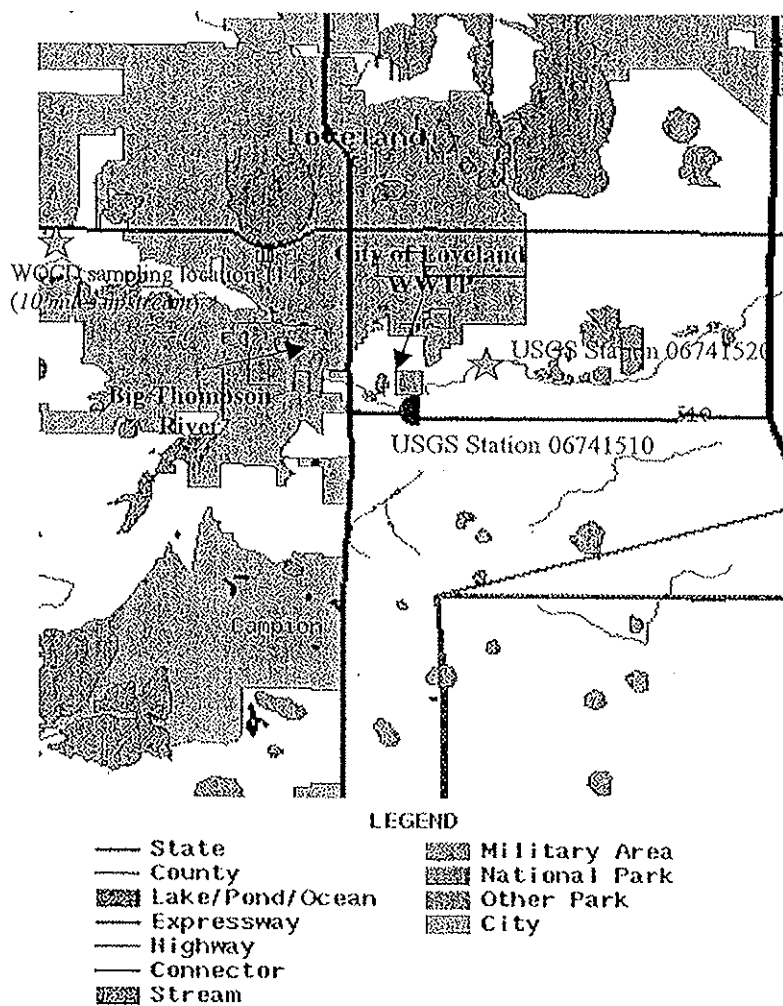
The water quality assessment (WQA) of the Big Thompson River near the City of Loveland Wastewater Treatment Facility (WWTF) was developed for the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD). The WQA was prepared to facilitate issuance of the Colorado Discharge Permit System (CDPS) permit for the City of Loveland WWTF, CDPS Permit No. CO-0026701, and is intended to determine the assimilative capacities available to the City of Loveland WWTF for pollutants found to be of concern.

Figure A-1 on the following page contains a map of the study area evaluated as part of this WQA.

The City of Loveland WWTF discharges to the Big Thompson River. The ratio of the low flow of the Big Thompson River to the City of Loveland WWTF design flow is 0.17:1. The nearest upstream and downstream facilities had no impact on the assimilative capacities available to the City of Loveland WWTF. However, due to the small available dilution, analyses indicate that assimilative capacities are extremely limited.

Information used in this assessment includes data gathered from the City of Loveland WWTF, the WQCD, the U.S. Environmental Protection Agency (EPA), the U. S. Geological Survey (USGS), and communications with the local water commissioner. The data used in the assessment consist of the best information available at the time of preparation of this WQA package.

Figure A-1
Study Area



Source: USGS Census Tiger Mapping Server,
approximately 9 miles across

II. Water Quality

The City of Loveland WWTF discharges to the Water Body Identification (WBID) stream segment COSPBT04c, which means the South Platte River Basin, Big Thompson River Sub-basin, Stream Segment 04c. This segment is composed of the "Mainstem of the Big Thompson River from County Road 11H to I-25." Stream segment COSPBT04c is classified for Warm Water Aquatic Life Class 2, Class 1a Recreation, and Agriculture.

Numeric standards are developed on a basin-specific basis and are adopted for particular stream segments by the Water Quality Control Commission. To simplify the listing of the segment-specific

standards, many of the aquatic life standards are contained in a table at the beginning of each chapter of the regulations. The standards in Table A-2 have been assigned to stream segment COSPBT04c in accordance with the *Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin*.

Table A-2	
In-stream Standards for Stream Segment COSPBT04c	
<i>Physical and Biological</i>	
Dissolved Oxygen (DO) = 5 mg/l, minimum	
pH = 6.5 - 9 su	
Fecal Coliform = 200 colonies/100 ml (May 1st through October 15th)	
E. Coli = 126 colonies/100 ml (May 1st through October 15th)	
Fecal Coliform = 2000 colonies/100 ml (October 16th through April 30th)	
E. Coli = 630 colonies/100 ml (October 16th through April 30th)	
<i>Fecal Coliform = 2000 colonies/100 ml (year-round temporary modification expires 6/30/04)</i>	
<i>E. Coli = 181 colonies/100 ml (year-round temporary modification expires 6/30/04)</i>	
<i>Inorganic</i>	
Un-ionized ammonia acute = TVS	
Un-ionized ammonia chronic = 0.1 mg/l	
Chlorine acute = 0.019 mg/l	
Chlorine chronic = 0.011 mg/l	
Free Cyanide acute = 0.005 mg/l	
Sulfide chronic = 0.002 mg/l	
Boron chronic = 0.75 mg/l	
Nitrite = 0.05 mg/l	
<i>Metals</i>	
Total Recoverable Arsenic chronic = 100 ug/l	
Dissolved Cadmium acute and chronic = TVS	
Dissolved Trivalent Chromium acute and chronic = TVS	
Dissolved Hexavalent Chromium acute and chronic = TVS	
Dissolved Copper acute and chronic = TVS	
Total Recoverable Iron chronic = 1000 ug/l	
Dissolved Lead acute and chronic = TVS	
Dissolved Manganese acute and chronic = TVS	
Total Mercury chronic = 0.01 ug/l	
Dissolved Nickel acute and chronic = TVS	
Dissolved Selenium acute and chronic = TVS	
Dissolved Silver acute and chronic = TVS	
Dissolved Zinc acute and chronic = TVS	

Standards for metals are generally shown in the regulations as Table Value Standards (TVS), and these often must be derived from equations that depend on the receiving stream hardness or species of fish present. The Classification and Numeric Standards documents for each basin include a specification for appropriate hardness values to be used. Specifically, the regulations state that:

The hardness values used in calculating the appropriate metal standard should be based on the lower 95% confidence limit of the mean hardness value at the periodic low flow criteria as determined from a regression analysis of site-specific data. Where insufficient site-specific data exists to define the mean hardness value at the periodic low flow criteria, representative regional data shall be used to perform the regression analysis. Where a regression analysis is not appropriate, a site-specific method should be used.

A regression analysis was conducted using data from USGS station 06741520 (Big Thompson River below Loveland) located on the Big Thompson River approximately 1.5 miles downstream from the City of Loveland WWTF. Hardness data were gathered from the downstream USGS station 06741520 and were available for a period of record from January 1990 through December 1992. These data were supplemented with seventeen data points from the same location supplied by the City of Loveland River Study (referred to in this study as Cty Rd 9E Site). These hardness data were based on a period of record from October 1999 through October 2000, and were paired with flow data from the study, if available. Where flow data from the study were not available, data from USGS gage station 06741510 were used (note that USGS gage station 06741520 is no longer used and thus could not provide flow data for the period of record from October 1999 through September 30, 2000, which is the final date for which flow data are currently available). In total, fifty-four paired flow and hardness data points were available based on a period of record from 1990 through 2000, but six were excluded as not representative of low flow conditions.

A regression analysis was then computed on the 48 data points to a low flow of 4.5 cfs, which was the lowest of the measured flows in the data set. The 95th confidence interval was then calculated, resulting in a hardness value equal to 454 mg/l. The *Basic Standards and Methodologies for Surface Water* indicate that hardness must be capped at 400 mg/l when determining in-stream metal water quality standards using the equations in the TVS. This maximum hardness value and the formulas contained in the TVS were used to calculate the in-stream water quality standards for metals, with the results shown in Table A-3.

It should be noted that the January 30, 2002, version of the *Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin* contained typographical errors for several TVS equations. Because a technical correction is expected soon, the corrected equations, not the equations as written, were used in this analysis.

Ambient Water Quality

The WQCD evaluates ambient water quality based on a variety of statistical methods as prescribed in Section 31.8(2)(a)(i) and 31.8(2)(b)(i)(B) of the *Colorado Department of Public Health and Environment Water Quality Control Commission Regulation No. 31*. Ambient water quality is evaluated in this WQA for use in determining assimilative capacities and in completing antidegradation reviews for pollutants of concern.

Table A-3

TVS-Based Metals Water Quality Standards For CO-0026701

Based on the Table Value Standards Contained in the Colorado Department of Public Health and Environment Water Quality Control Commission *Regulation 38*

Calculated Using the Following Value for Hardness as CaCO_3 : 400 mg/l

Parameter	In-Stream Water Quality Standard	Formula Used
Cadmium, Dissolved	Acute	19 ug/l $[1.13667-0.04184\ln(\text{hardness})][e^{(1.128(\ln(\text{hardness}))-3.6867)}]$
	Chronic	6.2 ug/l $[1.10167-0.04184\ln(\text{hardness})][e^{(0.7852(\ln(\text{hardness}))-2.715)}]$
Trivalent Chromium, Dissolved	Acute	1773 ug/l $e^{(0.819(\ln(\text{hardness}))+2.5736)}$
	Chronic	231 ug/l $e^{(0.819(\ln(\text{hardness}))+0.5340)}$
Hexavalent Chromium, Dissolved	Acute	16 ug/l Numeric standards provided, formula not applicable
	Chronic	11 ug/l Numeric standards provided, formula not applicable
Copper, Dissolved	Acute	50 ug/l $e^{(0.9422(\ln(\text{hardness}))-1.7408)}$
	Chronic	29 ug/l $e^{(0.8545(\ln(\text{hardness}))-1.7428)}$
Lead, Dissolved	Acute	281 ug/l $[1.46203-0.145712\ln(\text{hardness})][e^{(1.273(\ln(\text{hardness}))-1.46)}]$
	Chronic	11 ug/l $[1.46203-0.145712\ln(\text{hardness})][e^{(1.273(\ln(\text{hardness}))-4.705)}]$
Manganese	Acute	4738 ug/l $e^{(0.3331(\ln(\text{hardness}))+6.4676)}$
	Chronic	2618 ug/l $e^{(0.3331(\ln(\text{hardness}))+5.8743)}$
Nickel, Dissolved	Acute	1513 ug/l $e^{(0.846(\ln(\text{hardness}))+2.253)}$
	Chronic	168 ug/l $e^{(0.846(\ln(\text{hardness}))+0.0554)}$
Selenium, Dissolved	Acute	18 ug/l Numeric standards provided, formula not applicable
	Chronic	4.6 ug/l Numeric standards provided, formula not applicable
Silver, Dissolved	Acute	22 ug/l $\frac{1}{2} e^{(1.72(\ln(\text{hardness}))-6.52)}$
	Chronic	3.5 ug/l $e^{(1.72(\ln(\text{hardness}))-9.06)}$
Zinc, Dissolved	Acute	379 ug/l $e^{(0.8473(\ln(\text{hardness}))+0.8618)}$
	Chronic	382 ug/l $e^{(0.8473(\ln(\text{hardness}))+0.8699)}$

To conduct an assessment of the ambient water quality upstream of the City of Loveland WWTF, data were gathered primarily from USGS water quality station 06741510 (Big Thompson River at Loveland) located less than 1 mile upstream from the facility. Data were available for a period of record from October 1995 through September 1999. More recent data from this same location were supplied by the City of Loveland River Study (referred to in this study as St. Louis Site), and include data points from October 1999 through December 2001. Note that the City of Loveland River study and the USGS water quality station 06741510 presented data with an overlapping period of record, and sometimes these two sources differed slightly in their results. Where overlapping occurred, the

USGS results were used. These data were combined to represent the ambient water quality for the Big Thompson River as summarized in Table A-4.

Table A-4
Ambient Water Quality for the Big Thompson River

Parameter	Number of Samples	1st Percentile	50th Percentile	85th Percentile	Mean	Chronic Stream Standard	Notes
Temp (°C)	85	2.3	8.0	18	11	30	
DO (mg/l)	82	8	10	13	10	5.0	
pH (su)	84	7.8	8.2	8.5	8	6.5-9	
Total Coliform (#/100 ml)	17	1.0	70	5520	93	200	1
Hardness (mg/l CaCO ₃)	67	160	424	518	367	NA	2
As, Dis (ug/l)	11	0	0	0	0.094	NA	3
Cd, Dis (ug/l)	13	0	0	0	0	6.2	3
Cr, Dis (ug/l)	11	0	0	0	0	NA	3
Cu, Dis (ug/l)	79	0	0	1.9	0.86	29	3
Fe, Trec (ug/l)	46	90	158	541	383	1000	
Pb, Dis (ug/l)	11	0	0	0	0	11	3
Mn, Dis (ug/l)	2	45	55	66	55	2618	
Hg, Tot (ug/l)	34	0	0.039	0.12	0.060	0.010	3
Ni, Dis (ug/l)	13	0	0	0	0.085	168	3
Se, Dis (ug/l)	9	0	1.9	11	5.2	4.6	3
Ag, Dis (ug/l)	68	0	0	0	0.0057	3.5	3
Zn, Dis (ug/l)	13	0	0	0	0	382	3
Chloride (mg/l)	13	3.1	11	24	12	NA	
Nitrite (mg/l)	79	0	0.0034	0.010	0.0062	0.050	3
Nitrate+Nitrite (mg/l)	80	0.098	0.20	0.61	0.33	NA	
NH ₃ , Dis (mg/l)	34	0.031	0.042	0.068	0.061	NA	
NH ₃ , Unionized (mg/l)	10	0	0.00050	0.0017	0.00090	0.10	

Note 1: The calculated mean is the geometric mean. Note that for summarization purposes, the value of one was used where there was no detectable amount because the geometric mean cannot be computed using a value of zero. The value of 8000 colonies/100 ml was used where too numerous to count was recorded, as 8000 colonies/100 ml was the maximum fecal coliform concentration recorded in the data.

Note 2: Data taken from USGS gage station 06741520 (also known as the County Road 9E site), approximately 1.5 miles downstream from the City of Loveland WWTF.

Note 3: When sample results were below detection levels, the value of zero was used in accordance with the CO WQCD's standard approach for summarization and averaging purposes.

III. Water Quantity

The Colorado Regulations specify the use of low flow conditions when establishing water quality based effluent limitations, specifically the acute and chronic low flows. The acute low flow, referred to as 1E3, represents the one-day low flow recurring in a three-year interval. The chronic low flow, 30E3, represents the 30-day average low flow recurring in a three-year interval.

Low Flow Analysis

To determine the low flows available to the City of Loveland WWTF, USGS gage station 06741510 (Big Thompson River at Loveland, CO) was used. This flow gage provides a representative measurement of upstream flow because it is located approximately one mile upstream of the City of Loveland WWTF and there are no diversions or confluence of significance between the flow gage and the facility.

Daily flows from the USGS Gage Station 06741510 were obtained and the annual 1E3 and 30E3 low flows were calculated using U.S. Environmental Protection Agency (EPA) DFLOW software. The output from DFLOW provides calculated acute and chronic low flows for each month.

Flow data from October 1, 1990 through September 30, 2000 were available from the gage station. The gage station and time frames were deemed the most accurate and representative of current flows and were therefore used in this analysis.

Based on the low flow analysis described previously, the upstream low flows available to the City of Loveland WWTF were calculated and are presented in Table A-5.

Table A-5													
Low Flows for the Big Thompson River at the City of Loveland WWTF													
Low Flow (cfs)	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1E3 Acute	1.4	1.7	1.8	1.6	1.4	2.6	3.2	18	6.5	1.4	2.2	2.7	1.5
30E3 Chronic	2.0	2.1	2.0	2.0	2.1	2.9	11	23	13	3.3	3.3	2.7	2.1

IV. Technical Analysis

In-stream background data and low flows evaluated in Sections II and III are ultimately used to determine the assimilative capacity of the Big Thompson River near the City of Loveland WWTF for pollutants of concern. For all parameters except ammonia, it is the WQCD's approach to conduct a technical analysis of stream assimilation capacity using the lowest of the monthly low flows (referred to as the annual low flow) as calculated in the low flow analysis. For ammonia, it is the standard procedure of the WQCD to determine assimilative capacities for each month using the monthly low

flows calculated in the low flow analysis, as the regulations allow the use of seasonal flows when establishing assimilative capacities.

The WQCD's standard analysis consists of steady-state, mass-balance calculations for most pollutants and modeling for pollutants such as ammonia. The mass-balance equation is used by the WQCD to calculate the maximum allowable concentration of pollutants in the effluent, and accounts for the upstream concentration of a pollutant at the existing quality, critical low flow (minimal dilution), effluent flow and the water quality standard. The mass-balance equation is expressed as:

$$M_2 = \frac{M_3Q_3 - M_1Q_1}{Q_2}$$

where:

Q_1 = Upstream low flow (1E3 or 30E3)

Q_2 = Average daily effluent flow (design capacity)

Q_3 = Downstream flow ($Q_1 + Q_2$)

M_1 = In-stream background pollutant concentrations at existing quality

M_2 = Calculated maximum allowable effluent pollutant concentration

M_3 = Maximum allowable in-stream pollutant concentration (water quality standards)

The upstream background pollutant concentrations used in the mass-balance equation will vary based on the regulatory definition of existing ambient water quality. For most pollutants, existing quality is determined to be the 85th percentile. For metals in the total recoverable form, existing quality is determined to be the 50th percentile. For pathogens such as fecal coliform, existing quality is determined to be the geometric mean.

For non-conservative parameters and ammonia, the mass-balance equation is not as applicable and thus other approaches are considered where appropriate. Note that conservative pollutants are pollutants that are modeled as if mass is conserved and there is no degradation, whereas non-conservative pollutants degrade and sometimes are created within a receiving stream depending on stream conditions. A more detailed discussion of the technical analysis for these parameters is provided in the pages that follow.

Pollutants of Concern

The following parameters were identified by the WQCD as pollutants of concern for this facility:

- Ammonia
- Fecal Coliform
- Chlorine.

Additionally, it is WQCD's standard procedure to consider metals and cyanide as pollutants of concern for all major POTWs.

During assessment of the facility, nearby facilities, and receiving stream water quality, no additional parameters were identified as pollutants of concern.

City of Loveland WWTF: The City of Loveland WWTF is located at SE 1/4, Section 19, T5N, R68W, 6th P.M., at 920 South Boise, Loveland, CO in Larimer County. The current design capacity of the facility is 8 MGD (12 cfs). Wastewater treatment is accomplished using a mechanical wastewater treatment process. The technical analyses that follows include assessments of the assimilative capacity based on this design capacity.

Nearby Sources

An assessment of nearby facilities based on EPA's Permit Compliance System (PCS) database found 83 dischargers in the Larimer County area. More than two-thirds of the facilities conducted construction-related operations (e.g., sand and gravel) and thus had no pollutants of concern in common with City of Loveland WWTF. Several facilities were discharging to another watershed. Other facilities were located more than twenty miles from the City of Loveland WWTF and thus were not considered. The nearest dischargers were:

- The City of Loveland Water Supply (COG640086), which discharges to the Big Thompson River approximately five miles upstream from the facility of concern. The City of Greeley Water Supply (COG640005) discharges to an unnamed ditch tributary to the Big Thompson River also within five miles of the facility of concern. These water supply facilities share only chlorine as a pollutant of concern with the City of Loveland WWTF. Because in-stream levels of residual chlorine are detected for approximately one mile below a source, the Loveland and Greeley Water Supplies were not modeled together with the City of Loveland WWTF in this evaluation.
- The City of Milliken WWTF (CO0042528), which discharges to the Big Thompson River approximately 16 miles downstream of the City of Loveland WWTF, in Weld County. Due to the distance between the Milliken and Loveland facilities, modeling the two together was not deemed necessary.

The ambient water quality background concentrations used in the mass-balance equation account for pollutants of concern contributed by upstream sources, and thus it was not necessary to model upstream dischargers together with the City of Loveland WWTF when determining the available assimilative capacities in the Big Thompson River. Due to the distance traveled, modeling downstream facilities in conjunction with City of Loveland WWTF was not necessary.

Based on available information, there is no indication that non-point sources were a significant source of pollutants of concern. Thus, non-point sources were not considered in this assessment.

Chlorine: The mass-balance equation was used to determine the assimilative capacity for chlorine. There are no point sources discharging total residual chlorine within one mile of the City of Loveland WWTF. Because chlorine is rapidly oxidized, in-stream levels of residual chlorine are detected only for a short distance below a source. Ambient chlorine was therefore assumed to be zero.

Using the mass-balance equation provided in the beginning of Section IV, the acute and chronic low flows set out in Section III, the chlorine background concentration of zero as discussed above, and the in-stream standards for chlorine shown in Section II, assimilative capacities for chlorine were

calculated. The data used and the resulting calculations of the allowable discharge concentration, M_2 , are set forth below.

Parameter	Q_1 (cfs)	Q_2 (cfs)	Q_3 (cfs)	M_1 (mg/l)	M_3 (mg/l)	M_2 (mg/l)
Acute Chlorine	1.4	12	13.4	0	0.019	0.021
Chronic Chlorine	2.0	12	14.0	0	0.011	0.013

Fecal Coliform: There are no point sources discharging fecal coliform within one mile of the City of Loveland WWTF. Thus, fecal coliform assimilative capacities were evaluated separately.

It is the standard approach of the WQCD to perform a mass-balance check to determine if fecal coliform standards are exceeded. WQCD procedure specifies that checks are conducted using only the chronic low flow as set out in Section III for the appropriate seasons (from May 1st through October 15th of 2.9 cfs and from October 16th through April 30th of 2.0 cfs). Using the mass-balance equation provided in the beginning of Section IV, the background concentration for total coliform as requested by the City of Loveland and as reflected in Table A-4, and the in-stream standards for fecal coliform shown in Section II, checks for fecal coliform were conducted. The data used and the resulting calculations of the allowable discharge concentration, M_2 , are set forth below.

As mentioned above, stream segment COSPBT04c will be subject to seasonal fecal coliform standards, after the temporary modification expires on June 30, 2004. The values in the three tables below represent the temporary standards, and the final seasonal standards from May 1st through October 15th, and from October 16th through April 30th.

Year-Round Temporary Modification (expires on June 30, 2004)

Parameter	Q_1 (cfs)	Q_2 (cfs)	Q_3 (cfs)	M_1 (#/100 ml)	M_3 (#/100 ml)	M_2 (#/100 ml)
Fecal Coliform	2.0	12	14.0	93	2000	2,318

Seasonal Standards for May 1st through October 15th (effective July 1, 2004)

Parameter	Q_1 (cfs)	Q_2 (cfs)	Q_3 (cfs)	M_1 (#/100 ml)	M_3 (#/100 ml)	M_2 (#/100 ml)
Fecal Coliform	2.9	12	14.9	93	200	226

Seasonal Standards for October 16th through April 30th (effective July 1, 2004)

Parameter	Q_1 (cfs)	Q_2 (cfs)	Q_3 (cfs)	M_1 (#/100 ml)	M_3 (#/100 ml)	M_2 (#/100 ml)
Fecal Coliform	2.0	12	14.0	93	2000	2,318

Metals and Cyanide: Metals and cyanides may be present at large domestic WWTFs that accept discharges from industrial contributors. It is the standard approach of the WQCD to determine the available assimilative capacities for cyanide and those metals for which ambient water quality standards are available.

Using the mass-balance equation provided in the beginning of Section IV, the low flows provided in Section III, the background concentrations contained in Section II, and the in-stream standards for metals shown in Section II, assimilative capacities were calculated. The data used and the resulting calculations of the allowable discharge concentrations, M_2 , are set forth in Table A-6 for chronic assimilative capacities and in Table A-7 for acute assimilative capacities.

Table A-6
Chronic Assimilative Capacities for Metals

Parameter	Q_1 (cfs)	Q_2 (cfs)	Q_3 (cfs)	M_1	M_2	M_3	Notes
As, Trec (ug/l)	2.0	12	14.0	0	100	117	1
Cd, Dis (ug/l)	2.0	12	14.0	0	6.2	7.2	
Cr ⁺³ , Dis (ug/l)	2.0	12	14.0	0	231	270	2
Cr ⁺⁶ , Dis (ug/l)	2.0	12	14.0	0	11	13	2
Cu, Dis (ug/l)	2.0	12	14.0	1.9	29	34	
Fe, Trec (ug/l)	2.0	12	14.0	158	1000	1,140	
Pb, Dis (ug/l)	2.0	12	14.0	0	11	13	
Mn, Dis (ug/l)	2.0	12	14.0	66	2618	3,043	
Hg, Tot (ug/l)	2.0	12	14.0	0.12	0.010	-	
Ni, Dis (ug/l)	2.0	12	14.0	0	168	196	
Se, Dis (ug/l)	2.0	12	14.0	11	4.6	-	
Ag, Dis (ug/l)	2.0	12	14.0	0	3.5	4.1	
Zn, Dis (ug/l)	2.0	12	14.0	0	382	446	

Note 1: No current or historical ambient background data were available for total recoverable As. However, dissolved arsenic data were available and thus were used as the background concentration.

Note 2: No current or historical ambient data were available in the dissolved forms of Cr⁺³ and Cr⁺⁶. However, dissolved Cr data (representing a combination of the Cr⁺³ and Cr⁺⁶ forms) were available from sampling conducted during the years of 1996 through 1999 at USGS Water Quality station 06741510. For a conservative estimate, the dissolved Cr data from USGS Water Quality Station 06741510, which were found at less than detectable levels, were used as comparable background concentrations for the hexavalent and trivalent chromium forms of chromium.

Based on these calculations, the dash under M_2 indicates that there is no assimilative capacity available in the Big Thompson River for total mercury and dissolved selenium. According to WQCD standard procedure, the WQCD Assessment Unit investigates issues of water quality standard exceedances. The Assessment Unit is tasked with determining if the exceedances are valid and placing the receiving stream on the Clean Water Act Section 303(d) list of impaired waters, if appropriate. The City of Loveland has noted that the total mercury levels reported were actually

V. Antidegradation Review

As set out in *The Basic Standards and Methodologies of Surface Water*, Section 31.8(2)(b), an antidegradation analysis is required except in cases where the receiving water is designated as "Use Protected." Note that "Use Protected" waters are waters "that the Commission has determined do not warrant the special protection provided by the outstanding waters designation or the antidegradation review process" as set out in Section 31.8(2)(b). The antidegradation section of the regulation became effective in December 2000, and therefore antidegradation considerations are applicable to this WQA development.

According to the *Classification and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin*, stream segment COSPBT04c is Use Protected. Because the receiving waters are designated as Use Protected, no antidegradation review is necessary in accordance with the regulations. Thus, for purposes of this WQA, antidegradation review requirements have been met for the City of Loveland WWTP permit's issuance process.

Table A-8 Ammonia Assimilative Capacities for the Big Thompson River at the City of Loveland WWTF <i>Design of 8.0 MGD (12 cfs)</i>				
<i>Month</i>	<i>Total Ammonia Chronic (mg/l)</i>		<i>Total Ammonia Acute (mg/l)</i>	
January		11		14
February		9.8		11
March		10		13
April		11		24
May		10		21
June		11		25
July		12		32
August		20		30
September		17		25
October		23		28
November		11		15
December		13		20
<i>Annual</i>		<i>9.6</i>		<i>11</i>

VI. References

Colorado Total Maximum Daily Load and Wasteload Allocation Guidance, CDPHE, WQCD, November 1991.

Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin, Regulation No. 38, CDPHE, WQCC, Effective January 30, 2002.

The Basic Standards and Methodologies for Surface Water, Regulation 31, CDPHE, Effective October 31, 2001.

Antidegradation Significance Determination for New or Increased Water Quality Impacts, Procedural Guidance, WQCD, December, 2001.

AUTHORIZATION TO DISCHARGE UNDER THE
COLORADO DISCHARGE PERMIT SYSTEM

compliance with the provisions of the Colorado Water Quality Control Act, (25-8-101 et seq., CRS, 1973 as amended), for both discharges to surface and ground waters, and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.; the "Act"), for discharges to surface waters only, the

CITY OF LOVELAND

authorized to discharge from the City's wastewater treatment plant

located in the SE ¼, Section 19 T5N, R68W, 6th P.M., at 920 South Boise, Loveland, Colorado

Segment 4c of the Big Thompson River,

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Part I and II hereof. All discharges authorized herein shall be consistent with the terms and conditions of this permit.

The applicant may demand an adjudicatory hearing within thirty (30) days of the issuance of the final permit determination, per Regulation for the State Discharge Permit System, 61.7(1). Should the applicant choose to contest any of the effluent limitations, monitoring requirements or other conditions contained herein, the applicant must comply with Section 24-4-104 CRS 1973 and the Regulations for the State Discharge Permit System. Failure to contest any such effluent limitation, monitoring requirement, or other condition, constitutes consent to the condition by the applicant.

This permit and the authorization to discharge shall expire at midnight, July 31, 2007

Witnessed and Signed this 21st day of June, 2002

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Susan Kachereb

for

David Holm, Director
Water Quality Control Division

DATE SIGNED: JUNE 21, 2002

EFFECTIVE DATE OF PERMIT: AUGUST 1, 2002

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PART III

PART I

TERMS AND CONDITIONS

1. Service Area

The service area for this treatment facility is delineated in Figure 1. All wastewater flows contributed by the municipalities in this service area may be accepted by the City of Loveland for treatment at the City's wastewater treatment plant provided that such acceptance does not exceed the throughput or design capacity of the treatment works or constitute a substantial impact to the functioning of the treatment works, quality of the receiving waters, human health, or the environment.

In addition, the permittee shall enter into and maintain service agreements with any municipalities that discharge into the wastewater treatment facility. The service agreements shall contain all provisions necessary to protect the financial, physical, and operational integrity of the complete wastewater treatment works, including appurtenances.

2. Design Capacity

The design capacity of this domestic wastewater treatment works is 8.0 million gallons per day (MGD) for hydraulic flow (30-day average) and 12,500 lbs. BOD₅ per day for organic loading (30-day average).

3. Expansion Requirements

Pursuant to Colorado Law, C.R.S. 25-8-501 (5 d & e), the permittee is required to initiate engineering and financial planning for expansion of the domestic wastewater treatment works whenever throughput and treatment reaches eighty (80) percent of design capacity. Whenever throughput and treatment reaches ninety-five (95) percent of the design capacity, the permittee shall commence construction of the necessary treatment expansion.

In the case of a domestic wastewater treatment works, which treats wastewater from users under the permittee's jurisdiction, where construction is not commenced in accordance with the above paragraph, the permittee shall cease issuance of building permits within the service area until construction has commenced. If the permittee's domestic wastewater treatment works serves other municipalities or connector districts, the permittee shall have made provisions by contract or otherwise, for the municipalities within the service area to cease issuance of building permits within such service area until construction has commenced. Building permits may continue to be issued for any construction, which would not have the effect of increasing the input of sewage to the wastewater treatment works that is the subject of this permit.

If, during the previous calendar year, the monthly organic loading (lbs. BOD₅/day) to the facility in the maximum month exceeded either 80% or 95% of the organic capacity identified in Part I.A.2. of this permit, the permittee shall submit a report by March 31 the following year that includes:

- a. A schedule for planning for a facility expansion if 80% of the organic capacity was exceeded; or
- b. A schedule for construction of a facility expansion if 95% of the organic capacity was exceeded; or
- c. An analysis that indicates that the exceedance of the applicable percentage of the organic capacity (80% or 95%) was an anomaly and is not expected to occur during the current calendar year.

If 80% or 95% of the hydraulic capacity identified in Part I.A.2 of this permit was exceeded during the month of maximum flow, then the permittee is not required to provide the information required in paragraphs a) through c), above, unless violation(s) of effluent limits can be directly related to the magnitude of the hydraulic loading during any such months.

If the permittee has reason to believe that the peak flow in any major interceptor or lift station is expected to cause an overflow from the interceptor or lift station during the current calendar year, the permittee shall submit a report within 30 days of such finding that includes a schedule of actions to be taken immediately that will prevent any overflow to state waters.

4. Facilities Operation

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee as necessary to achieve compliance with the conditions of this permit. This provision requires the operation of back-up or auxiliary facilities or similar systems when installed by the permittee only when necessary to achieve compliance with the conditions of the permit. Any sludge produced at the wastewater treatment facility shall be disposed of in accordance with State and Federal guidelines and regulations.

TERMS AND CONDITIONS (continued)

Effluent Limitations

During the period beginning no later than the effective date of the permit and lasting through March 31, 2006, the permittee is authorized to discharge from outfall(s) serial number(s): 001A, following disinfection and prior to mixing with the receiving stream.

In accordance with the Water Quality Control Commission Regulations for Effluent Limitations, Section 62.4, and the Colorado Discharge Permit System Regulations, Section 61.8(2), the permitted discharge shall comply with the following limitations.

Effluent Parameter	Discharge Limitations		
	30-Day Average	7-Day Average	Daily Maximum
Flow, MGD	8.0 a/	N/A	Report e/
5-day Biochemical Oxygen Demand (BOD ₅), mg/l	30 a/	45 b/	N/A
TSS, mg/l	30 a/	45 b/	N/A
Fecal Coliform, no/100 ml			
Through June 30, 2004 (year-round)	2,318 c/	4,636 c/	N/A
After July 1, 2004 (May 1-October 15)	226 c/	452 c/	N/A
After July 1, 2004 (October 16-April 30)	2,318 c/	4,636 c/	N/A
Total Residual Chlorine, mg/l	0.013 a/	N/A	0.021 e/
pH, s.u. (minimum-maximum)	N/A	N/A	(6.5-9.0) d/
Oil and Grease, mg/l	N/A	N/A	10 d/
Total Ammonia as N, mg/l			
Through September 30, 2004			
January	79.7 a/	N/A	Report e/
February	58.3 a/	N/A	Report e/
March	48.6 a/	N/A	Report e/
April	55.1 a/	N/A	Report e/
May	21 a/	N/A	27 e/
June	22 a/	N/A	25 e/
July	23 a/	N/A	30 e/
August	20 a/	N/A	30 e/
September	17 a/	N/A	25 e/
October	46.4 a/	N/A	Report e/
November	47.8 a/	N/A	Report e/
December	65.9 a/	N/A	Report e/
As of October 1, 2004			
January	Report a/	N/A	29 e/
February	Report a/	N/A	26 e/
March	Report a/	N/A	27 e/
April	Report a/	N/A	29 e/
May	21 a/	N/A	27 e/
June	22 a/	N/A	25 e/
July	23 a/	N/A	30 e/
August	20 a/	N/A	30 e/
September	17 a/	N/A	25 e/
October	25 a/	N/A	28 e/
November	Report a/	N/A	29 e/
December	Report a/	N/A	27 e/
Weak Acid Dissociable Cyanide, ug/l n/	N/A	N/A	5.6 e/
Chromium, Hexavalent, Dissolved, ug/l	13 a/	N/A	18 c/
Total Mercury, ug/l	Report a/	N/A	N/A
Potentially Dissolved Copper, ug/l	Report a/	N/A	N/A
Selenium, Potentially Dissolved, ug/l	Report a/	N/A	N/A
Whole Effluent Toxicity, Chronic	N/A	N/A	Statistical Difference

For an explanation of footnotes, refer to the FOOTNOTES Section following Section B. of this permit.

6. Percentage Removal Requirements (BOD₅ and TSS Limitations)

In addition to the concentration limitations on BOD₅ and Total Suspended Solids (TSS) indicated above, the arithmetic mean of the BOD₅ and TSS concentrations for effluent samples collected during the calendar month shall demonstrate a minimum of eighty-five percent (85%) removal of BOD₅ and TSS, as measured by dividing the respective difference between the mean influent and effluent concentrations for the calendar month by the respective mean influent concentration for the calendar month, and multiplying the quotient by 100.

7. Compliance Schedule

a. Fecal Coliform

- i. The permittee must, by **June 30, 2003**, submit plans and specifications for construction of facilities identified in the study as being necessary to meet the final fecal coliform limitation.
- ii. The permittee must, by **June 30, 2004**, complete construction of facilities, which will allow the permittee to meet the final fecal coliform limitation.

b. Total Ammonia

- i. The permittee must, by **June 30, 2003**, submit a report documenting the results of the process evaluation for the plant regarding its ability to meet the total ammonia effluent limitations. The report shall state whether modifications are necessary.
- ii. Should modifications be necessary, the permittee must, by **October 1, 2004**, complete the modifications to the wastewater treatment plant and meet the total ammonia limitations.

Progress reports must be submitted for tasks identified in the above schedule. Refer to PART I, Section D, Reporting Requirements, for specific information.

Industrial Pretreatment Program - Contributing Industries and Pretreatment Requirements

- a. The Permittee shall operate an industrial pretreatment program in accordance with the following permit requirements developed pursuant to Section 402(b)(8) of the Clean Water Act, the General Pretreatment Regulations (40 CFR Part 403), Section 25-8-501 and 25-8-508 of the Colorado Water Quality Control Act, the Colorado Pretreatment Regulations (5 CCR 1002-63) and the approved pretreatment program submitted by the Permittee. The pretreatment program was approved on September 9, 1985, and has subsequently incorporated substantial modifications as approved by the Approval Authority. The approved pretreatment program, and any approved modifications thereto, is hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:
 - i. Industrial user information shall be updated at a minimum of once per year or at that frequency necessary to ensure that all Industrial Users are properly permitted and/or controlled. The records shall be maintained and updated as necessary;
 - ii. The Permittee shall sample and inspect each Significant Industrial User (SIU) at least once per calendar year (40 CFR Section 403.8(f)(2)(v)). This is in addition to any industrial self-monitoring activities;
 - iii. The Permittee shall evaluate, at least every two years, whether each SIU needs a spill or slug control plan or needs to update such a plan. Where needed, the Permittee shall require the SIU to prepare or update, and then implement the plan. Where a slug prevention plan is required, the Permittee shall ensure that the plan contains at least the minimum elements required in 40 CFR Section 403.8(f)(2)(v);
 - iv. The Permittee shall investigate instances of non-compliance with Pretreatment Standards and requirements indicated in reports and notices required under 40 CFR Section 403.12, or indicated by analysis, inspection, and surveillance activities.
 - v. The Permittee shall enforce all applicable Pretreatment Standards and requirements and obtain remedies for noncompliance by any industrial user;
 - vi. The Permittee shall control, through the legal authority in the approved pretreatment program, the contribution to the DWTW by each industrial user to ensure compliance with applicable Pretreatment Standards and requirements. In the case of industrial users identified as significant under 40 CFR Section 403.3(t), this control shall be achieved through permit, order, or similar means and shall contain, at a minimum, the following conditions:

TERMS AND CONDITIONS

Industrial Pretreatment Program - Contributing Industries and Pretreatment Requirements (continued)

- (A) Statement of duration (in no case more than five (5) years);
 - (B) Statement of non-transferability without, at a minimum, prior notification to the Permittee and provision of a copy of the existing control mechanism to the new owner or operator;
 - (C) Effluent limits based on applicable Pretreatment Standards, Categorical Pretreatment Standards, local limits, and State and local law;
 - (D) Self-monitoring, sampling, reporting, notification and record keeping requirements, including an identification of the pollutants to be monitored, sampling location, sampling frequency, and sample type, based on the applicable Pretreatment Standards in 40 CFR Part 403, Categorical Pretreatment Standards, local limits, and State and local law; and,
 - (E) Statement of applicable civil and criminal penalties for violation of Pretreatment Standards and requirements, and any applicable compliance schedule. Such schedules may not extend the compliance date beyond deadlines mandated by federal statute or regulation.
- vii. The Permittee shall provide adequate staff, equipment, and support capabilities to carry out all elements of the pretreatment program as required by 40 CFR Section 403.8(f)(3);
- viii. The approved program shall not be substantially modified by the Permittee without the approval of the EPA. Substantial and non-substantial modifications shall follow the procedures outlined in 40 CFR Section 403.18;
- ix. The Permittee shall develop, implement, and maintain an enforcement response plan as required by 40 CFR Section 403.8(f)(5); and
- x. The Permittee shall notify all Industrial Users of the users' obligations to comply with applicable requirements under Subtitles C and D of the Resource Conservation and Recovery Act (RCRA) as required by 40 CFR Section 403.8(f)(2)(iii).
- b. The Permittee shall establish and enforce specific local limits to implement the provisions of 40 CFR Section 403.5(a) and (b), as required by 40 CFR Section 403.5(c). The Permittee shall continue to develop these limits as necessary and effectively enforce such limits.
- In accordance with EPA policy and with the requirements of 40 CFR sections 403.8(f)(4) and 403.5(c), the Permittee shall determine if technically based local limits are necessary to implement the general and specific prohibitions of 40 CFR sections 403.5(a) and (b).
- This evaluation should be conducted in accordance with the latest revision of the "EPA Region VIII Strategy for Developing Technically Based Local Limits", and after review of the "Guidance Manual on the Development and implementation of Local Discharge Limitations Under the Pretreatment Program" December 1987. Where the Permittee determines that revised or new local limits are necessary, the Permittee shall submit the proposed local limits to the Approval Authority in an approvable form based upon the findings of the technical evaluation within two-hundred and seventy (270) days from the effective date of this permit.
- c. The Permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in 40 CFR Part 122 Appendix D (NPDES Application Testing Requirements) Table II at least annually and the toxic pollutants in Table III at least quarterly. If, based upon information available to the Permittee, there is reason to suspect the presence of any toxic or hazardous pollutant listed in Table V, or any other pollutant in a quantity or concentration known or suspected to adversely affect DWTW operation, receiving water quality, or solids disposal procedures, analysis for those pollutants shall be performed at least quarterly on both the influent and the effluent.
- i. Along with the Permittee's pretreatment annual report, the Permittee will submit a list of compounds included in Table V that are suspected or known to be present in its influent wastewater. This determination shall be based on a review of the Permittee's pretreatment program records. The state permitting authority and/or Approval Authority may review and comment on the list and the list may be revised if, in the opinion of the state permitting authority and/or Approval Authority, the list is incomplete. The Permittee will perform annual analysis on the influent for the revised list of compounds for which there are acceptable testing procedures.
 - ii. Where the pollutants monitored in accordance with this section are reported as being above the method detection limit, the results for these pollutants shall be reported in the Permittee's pretreatment annual report.

TERMS AND CONDITIONS

Industrial Pretreatment Program - Contributing Industries and Pretreatment Requirements (continued)

- d. The Permittee shall analyze the treatment facility sludge (biosolids) prior to disposal, for the presence of the toxic pollutants listed in 40 CFR Part 122 Appendix D (NPDES Application Testing Requirements) Table III at least once per year. If the Permittee does not dispose of biosolids during the calendar year, the Permittee shall certify to that in the Pretreatment Annual Report and the monitoring requirements in this paragraph shall be suspended for that calendar year.
 - i. The Permittee shall review the pollutants in 40 CFR Part 122, Appendix D, tables II and V. If any of the pollutants in these tables were above detection in the influent samples during the previous 2 years or the last two analyses, whichever is greater, the Permittee shall sample and analyze its biosolids for these pollutants. The Permittee shall perform this evaluation and analysis at least once per year.
 - ii. The Permittee shall use sample collection and analysis procedures as approved for use under 40 CFR Part 503.
 - iii. The Permittee shall report the results for these pollutants in the Permittee's pretreatment annual report.
- e. All analyses shall be in accordance with test procedures established in 40 CFR Part 136. Where analytical techniques are not specified or approved under 40 CFR Part 136, the Permittee shall use its best professional judgment and guidance from the State and the Approval Authority regarding analytical procedures. All analytical procedures and method detection limits must be specified when reporting the results of such analyses. Sampling methods shall be those defined in 40 CFR Part 136, 40 CFR Part 403, as defined in this permit, or as specified by the Approval Authority. Where sampling methods are not specified, the influent and effluent samples collected shall be composite samples consisting of at least twelve (12) aliquots collected at approximately equal intervals over a representative 24-hour period and composited according to flow. Where automated composite sampling is inappropriate, at least four (4) grab samples shall be manually taken at equal intervals over a representative 24-hour period, and composited before analysis using approved methods.
- f. The Permittee shall prepare annually a list of industrial users, which during the preceding twelve (12) months have significantly violated Pretreatment Standards or requirements. This list is to be published annually in the largest newspaper in the Permittee's service area as required by 40 CFR Section 403.8(f)(2)(vii).

In addition, on or before March 28, the Permittee shall submit a pretreatment program annual report to the Approval Authority and the state permitting authority that contains the following information:

- i. An updated list of all SIUs as defined at 40 CFR 403.3(t). For each SIU listed the following information shall be included:
 - (A) All applicable Standard Industrial Classification (SIC) codes and categorical determinations, as appropriate. In addition, a brief description of the industry and general activities;
 - (B) Permit status. Whether each SIU has an unexpired control mechanism and an explanation as to why any SIUs are operating without a current, unexpired control mechanism (e.g. permit);
 - (C) A summary of all monitoring activities performed within the previous twelve (12) months. The following information shall be reported:

Total number of SIUs inspected; and Total number of SIUs sampled.
- ii. For all industrial users that were in Significant Non-Compliance during the previous twelve (12) months, provide the name of the violating industrial user, indicate the nature of the violations, the type and number of actions taken (warning letter, notice of violation, administrative order, criminal or civil suit, fines or penalties collected, etc.) and current compliance status. If the industrial user was put on a schedule to attain compliance with effluent limits, indicate the date the schedule was issued and the date compliance is to be attained. Determination of Significant Non-Compliance shall be performed as defined at 40 CFR Section 403.8(f)(2)(vii).
- iii. A summary of all enforcement actions not covered by the paragraph above conducted in accordance with the approved Enforcement Response Plan.
- iv. A list of all SIUs whose authorization to discharge was terminated or revoked during the preceding twelve (12) month period and the reason for termination;

TERMS AND CONDITIONS

Industrial Pretreatment Program - Contributing Industries and Pretreatment Requirements (continued)

- v. A report on any Interference, Pass Through, upset or CDPS permit violations known or suspected to be caused by non-domestic discharges of pollutant and actions taken by the Permittee in response;
 - vi. Verification of publication of industrial users in Significant Non-Compliance;
 - vii. Identification of the specific locations, if any, designated by the Permittee for receipt (discharge) of trucked or hauled waste;
 - viii. Information as required by the Approval Authority or state permitting authority on the discharge to the DWTW from the following activities:
 - (A) Ground water clean-up from underground storage tanks;
 - (B) Trucked or hauled waste; and,
 - (C) Groundwater clean-up from RCRA or Superfund sites.
 - ix. A description of all changes made during the previous calendar year to the Permittee's pretreatment program that were not submitted as substantial or non substantial modifications to EPA.
 - x. The Permittee shall evaluate actual pollutants loadings against the approved Maximum Allowable Headworks Loadings (MAHLs). Where the actual loading exceeds the MAHL, the Permittee shall immediately begin a program to either revise the existing local limit and/or undertake such other studies as necessary to evaluate the cause(s) of the exceedence. The Permittee shall provide a summary of its intended action.
 - xi. Other information that may be deemed necessary by the Approval Authority.
- g. The Permittee shall prohibit the introduction of the following pollutants into the DWTW:
- i. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (DWTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than sixty (60) degrees Centigrade (140 degrees Fahrenheit) using the test methods specified in 40 CFR Section 261.21;
 - ii. Pollutants which will cause corrosive structural damage to the DWTW, but in no case discharges with pH lower than 5.0, unless the works are specifically designed to accommodate such discharges;
 - iii. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the DWTW, or other interference with the operation of the DWTW;
 - iv. Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with the DWTW;
 - v. Heat in amounts which will inhibit biological activity in the DWTW resulting in Interference but in no case heat in such quantities that the temperature at the DWTW treatment plant exceeds forty (40) degrees Centigrade (104 degrees Fahrenheit) unless the Approval Authority, upon request of the DWTW, approves alternate temperature limits;
 - vi. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through;
 - vii. Pollutants which result in the presence of toxic gases, vapors, or fumes within the DWTW in a quantity that may cause acute worker health and safety problems;
 - viii. Any trucked or hauled pollutants, except at discharge points designated by the DWTW; and,
 - ix. Any specific pollutant that exceeds a local limitation established by the DWTW in accordance with the requirements of 40 CFR Section 403.5(c) and (d).
 - x. Any other pollutant, which may cause Pass Through or Interference.

TERMS AND CONDITIONS

Industrial Pretreatment Program - Contributing Industries and Pretreatment Requirements (continued)

- h. The Permittee shall provide the pretreatment Approval Authority with adequate notice of any substantial change in the volume or character of pollutants being introduced into the treatment works by any SIU introducing pollutants into the treatment works at the time of application for the discharge permit. For the purposes of this section, "substantial change" shall mean a level of change, which has a reasonable probability of affecting the Permittee's ability to comply with its permit conditions or to cause a violation of stream standards applied to the receiving water.

Adequate notice shall include information on: (1) the quality and quantity of effluent to be introduced into the treatment works, and (2) any anticipated impact of the change on the quality or quantity of effluent to be discharged from the publicly owned treatment works.

- i. Section 309(f) of the Act provides that EPA may issue a notice to the DWTW stating that a determination has been made that appropriate enforcement action must be taken against an industrial user for noncompliance with any Pretreatment Standards and requirements. The notice provides the DWTW with thirty (30) days to commence such action. The issuance of such permit notice shall not be construed to limit the authority of the permit issuing authority or Approval Authority.
- j. The state permitting authority and the Approval Authority retains, at all times, the right to take legal action against the industrial contributor for violations of a permit issued by the Permittee, violations of any Pretreatment Standard or requirement, or for failure to discharge at an acceptable level under national standards issued by EPA under 40 CFR, chapter I, subchapter N. In those cases where a CDPS permit violation has occurred because of the failure of the Permittee to properly develop and enforce Pretreatment Standards and requirements as necessary to protect the DWTW, the state permitting authority and/or Approval Authority shall hold the Permittee responsible and may take legal action against the Permittee as well as the Indirect Discharger(s) contributing to the permit violation.

9. Biosolids Limitations and Management Requirements

In accordance with the Water Quality Control Commission Biosolids Regulations, Section 64.11, and the Colorado Discharge Permit System Regulations, Section 61.8(3), biosolids generated by this facility to be used for land application for beneficial use shall comply with the following limitations.

a. Pollutant Limitations

- i. Biosolids, which are to be land applied to agricultural land, forestland, a public contact site or a reclamation site, shall meet either:
- (A) The daily maximum pollutant concentrations and the cumulative pollutant loading limits identified in the following table; or
- (B) The daily maximum pollutant concentrations and the monthly average pollutant concentrations identified in the following table.

Biosolids Pollutant Concentrations

Pollutant	Pollutant Concentration (mg/Kg dry weight basis)		Cumulative Pollutant Loading Limits (kg/ha)
	Daily Maximum	Monthly Average	
Total Arsenic	75	41	41
Total Cadmium	85	39	39
Total Copper	4300	1500	1500
Total Lead	840	300	300
Total Mercury	57	17	17
Total Molybdenum	75	-	-
Total Nickel	420	420	420
Total Selenium	100	100	100
Total Zinc	7,500	2,800	2,800

- ii. Biosolids to be sold or given away in a bag or similar enclosure for application to the land for other than lawn or home garden use shall meet:

9. Biosolids Limitations and Management Requirements (continued)

- (A) The daily maximum pollutant concentrations and the annual pollutant loading limits identified in the table in Part I.A.9.a.(iii), below; or
- (B) The daily maximum pollutant concentrations and the monthly average pollutant concentrations identified in the table in Part I.A.9.a.(iii), below.
- iii. Biosolids to be applied to a lawn or home garden shall meet the monthly average pollutant concentrations identified in the following table.

Monthly Average Pollutant Concentrations		
Pollutant	Pollutant Concentration (mg/kg dry weight basis)	
	Daily Maximum	Monthly Average
Total Arsenic	75	41
Total Cadmium	85	39
Total Copper	4300	1500
Total Lead	840	300
Total Mercury	57	17
Total Molybdenum	75	-
Total Nickel	420	420
Total Selenium	100	100
Total Zinc	7,500	2,800

b. Pathogen Limitations

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site, the biosolids shall meet either Class A or Class B (including the site restrictions) criteria identified in the following two tables. If the biosolids are to be sold or given away in a bag or similar enclosure for application to land or for use on a lawn or home garden, the biosolids shall meet Class A criteria as described in the following table. Compliance with either Class A or Class B fecal coliform or salmonella requirements as listed in the following two tables shall be determined based upon seven discrete samples for Class A and the geometric mean of seven individual biosolids samples collected over a two week period for Class B.

Class A Pathogen Requirements

Fecal Coliform and Salmonella Limits		Process Requirements (One of the following)
Fecal Coliforms shall be < 1000 MPN per gram of total solids OR Salmonella shall be < 3 MPN per 4 grams of total solids	AND	1. Composting using either the within-vessel or static aerated pile method, the temperature of the sludge is maintained at 55°C or higher for three days.
		2. Composting using the windrow method, the temperature of the sludge is maintained at 55°C or higher for 15 days or longer, with a minimum of 5 turnings of the pile during those 15 days.

Class B Pathogen Requirements

Fecal Coliform Limit	Process Requirements
Fecal Coliforms shall be < 2,000,000 MPN or CFU/gram of total solids	Aerobic digestion for 40 days at 20°C to 60 days at 15°C. Anaerobic digestion for 15 days within 35°C-55°C to 60 days at 20°C

i. Site Restrictions

The permittee shall comply with all of the site restrictions listed below:

- (A) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.
- (B) Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remain on the land surface for four months or more before incorporation into the soil.

9. Biosolids Limitations and Management Requirements (continued)

- (C) Food crops with harvested parts below the land surface shall not be harvested for 38 months after application if the biosolids remain on the land surface for less than four months before incorporation into the soil.
- (D) Other food crops and feed crops shall not be harvested from the land for 30 days after application.
- (E) Animals shall not be allowed to graze on the land for 30 days after application.
- (F) Turf grown on land where biosolids are applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- (G) Public access to land with a high potential for public exposure shall be restricted for one year after application.
- (H) Public access to land with a low potential for public exposure shall be restricted for 30 days after application.

c. Vector Attraction Reduction Limitations

If the biosolids are to be land applied to agricultural land, forestland, a public contact site, or a reclamation site, the biosolids shall meet any one of the alternatives c.i. through c.v.

If the biosolids are to be sold or given away in a bag or similar enclosure for application to land or for use on a lawn or home garden, the biosolids shall meet one of the three alternatives (i) through (iii) below.

- i. The mass of volatile solids in the biosolids shall be reduced by a minimum of 38 percent before land application. Alternately, if aerobically digested biosolids cannot meet the 38 percent volatile solids reduction requirement, a portion of the previously digested biosolids (with a percent solids content of 2 percent or less) shall be digested aerobically in the laboratory in a bench-scale unit for an additional 30 days at a temperature between 20° and 22°C. At the end of the 30 days, the volatile solids content shall have been reduced by no more than 15 additional percent.
- ii. The specific oxygen uptake rate (SOUR) for the biosolids treated in an aerobic process shall be equal to or less than 1.5 mg of oxygen/hour/gram of total solids at a temperature of 20°C.
- iii. The biosolids shall be treated in an aerobic process for 14 days or longer with a temperature remaining above 40°C. The average temperature shall be greater than 45°C.
- iv. The biosolids shall be injected below the surface of the land and no significant amount of biosolids shall be present on the land surface within one hour after the biosolids are injected. If the biosolids meet the Class A pathogen requirements (Part I.A.9.b.i.), the biosolids shall be injected below the land surface within 8 hours after the biosolids are discharged from the pathogen reduction process.
- v. Biosolids applied to the land surface shall be incorporated into the soil within 6 hours after application to the land. Biosolids that are incorporated into the soil and which meet the Class A pathogen requirements (Part I.A.9.b.i.) shall be applied to or placed on the land within 8 hours after being discharged from the pathogen treatment process.

d. Biosolids Management Practices

- i. If the biosolids or material derived from biosolids meet the pollutant concentration limits in Part I.A.9.a., the Class A pathogen reduction limits in Part I.A.9.b. and one of the first four vector attraction reduction alternatives in Part I.A.9.c., the following management practices are not required unless requested by the Division through permit modification procedures under Part II.B.8.e. of this permit.
- ii. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:
 - (A) The permittee shall provide to the Division and to EPA within 90 days of the issuance of this permit a land application plan. At a minimum, the plan is to include the components listed in section 2.3 of the latest version of the EPA Region VIII Biosolids Management Handbook.
 - (B) Application of biosolids shall be conducted in a manner that will not contaminate the groundwater underlying the sites. Biosolids shall not be applied to any site area with standing water or where the annual high groundwater level is less than five feet without written permission of the Division.
 - (C) Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the U.S. (as defined in 40 CFR 122.2).

9. Biosolids Limitations and Management Requirements (continued)

- (D) Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. The treatment plant shall provide written notification to the applicator of the biosolids, if not the same, of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Division is required to exceed the agronomic rate.
- (E) No person shall apply sludge for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to five percent unless one of the following requirements is met:
 - (1) A vegetated buffer strip of at least 50 feet is provided between the application area and the site boundary; or,
 - (2) Division approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
- (F) The biosolids or the application of the biosolids shall not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of critical habitat of a threatened or endangered species after application.
- (G) For biosolids that are sold or given away, either a label shall be affixed to the bag or similar enclosure or an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
 - (1) The name and address of the person who prepared the biosolids for sale or give away for application to the land.
 - (2) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
 - (3) When biosolids which are sold or given away do not meet the monthly average pollutant concentrations in Part I.A.9.a), the annual whole biosolids application rate for biosolids which do not cause the annual pollutant loading rates in Part I.A.9.a)(iii). to be exceeded.
- (H) Biosolids subject to the cumulative pollutant loading rates in Part I.A.9.a)(i) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Part I.A.9.a)(i) have been reached.
- (I) If the permittee applies the sludge, it shall provide the owner or lease holder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.

iii. Special Conditions on Biosolids Storage

Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two years. Written permission to store biosolids for more than two years must be obtained from the Division. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.

iv. Change in Biosolids Treatment System or Use/Disposal Practice

The permittee must inform the Division and the EPA at least 180 days prior to any significant change in the biosolids generation and handling processes at the plant and any major change in use/disposal practices. This includes, but is not limited to, the addition or removal of biosolids treatment units (e.g., digesters, drying beds, etc.) and/or any other change, which would require a major modification of the permit (e.g., changing from land application to surface disposal). For any biosolids that are landfilled, the requirements in section 2.12 of the latest version of the Region VIII Biosolids Management Handbook should be followed.

MONITORING REQUIREMENTS

1. Influent Parameters

Regardless of whether or not an effluent discharge occurs and in order to obtain an indication of the current influent loading as compared to the approved capacity specified in Part I, Section A.2.; the permittee shall monitor influent parameters at the following required frequencies, the results to be reported on the Discharge Monitoring Report (See Part I, Section D.2.).

Parameter	Measurement Frequency	Sample Type
Influent Flow, MGD	Continuous	Recorder f/
Influent BOD ₅ , mg/l (lb/day)	5x/Week	Composite
Influent Total Suspended Solids, mg/l	5x/Week	Composite

Self-monitoring samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):
Monitoring point 3001, at a representative point in the headworks of the facility.

MONITORING REQUIREMENTS

Effluent Parameters

In order to obtain an indication of the probable compliance or non-compliance with the effluent limitations specified in Part I, Section A.5, the permittee shall monitor effluent parameters at the following required frequencies, the results to be reported on the Discharge Monitoring Report (See Part I, Section D.2.):

Parameter	Measurement Frequency	Sample Type
Effluent Flow, MGD	Daily	Instantaneous
Effluent BOD ₅ , mg/l	5x/Week	Composite
Effluent Total Suspended Solids, mg/l	5x/Week	Composite
Effluent Fecal Coliform, no./100 ml	5x/Week	Grab c/
Effluent Total Residual Chlorine, mg/l	4x/Day g/	Grab
Effluent pH, s.u.	Daily	Grab
Effluent Oil & Grease, mg/l	Daily	Visual h/
Effluent Total Ammonia as N, mg/l	Weekly	Composite
Cyanide, WAD, ug/l	Weekly	Grab
Chromium, Hexavalent, Dissolved, ug/l	Weekly	Grab
Mercury, Total, ug/l	Weekly	Composite
Copper, Potentially Dissolved, ug/l	Quarterly	Composite
Selenium, Potentially Dissolved, ug/l	Quarterly	Composite
Whole Effluent Toxicity, Chronic	Quarterly	3 Composites/Test

Self-monitoring samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):
Discharge point 001A, following chlorine contact basin and before mixing with the receiving stream.

3. Biosolids Parameters

- a. The permittee shall identify the annual biosolids production rate on a dry weight basis, in the Annual Biosolids Report (see Part I, Section D.3).
- b. If biosolids from the treatment facilities are disposed of at a solid waste disposal site or applied to land for beneficial use*, the following requirements apply.

The discharge of solid waste to land for disposal is regulated by the Colorado Solid Wastes Disposal Sites and Facilities Act (30-20, Part 1 CRS 1973). The Act requires that either a Certificate of Designation be issued by the appropriate board of county commissioners for any disposal site located within an unincorporated portion of a county, or that approval be granted by the appropriate governing body of an incorporated portion of a county for any disposal site located within that incorporated area. Biosolids are considered, by definition, [30-20-101(6)] to be a solid waste.

Section 30-20-102(6) provides an exemption from the Certificate of Designation requirement for biosolids that are used in a beneficial manner and are designated as meeting all applicable regulations of the Department. The application of biosolids to agricultural or disturbed land as a soil conditioner/fertilizer is subject to the Colorado Biosolids Regulations 64 (5CCR 1002-64). Biosolids disposed of in this manner shall comply with the requirements of these Regulations.

- c. If land application is practiced, the permittee shall monitor biosolids quality as follows. Results of monitoring shall be included in the Annual Biosolids Report (see Part I, Section D.3.).
 - i. Upon the effective date of this permit, all chemical pollutants, pathogens and applicable vector attraction reduction requirements shall be monitored per the schedule in the following table:

B. MONITORING REQUIREMENTS

3. Biosolids Parameters (continued)

ANNUAL BIOSOLIDS PRODUCTION (dry tons)	FREQUENCY
less than 319	once per year
320 to less than 1,650	once per quarter
1,651 to less than 16,500	once per two months
16,500 and greater	monthly

- ii. If this facility does not collect samples on a regular basis because sampling occurs from long-term treatment piles, compost piles, drying beds, etc., a sampling and analysis plan is to be prepared and submitted to the Division and to EPA within 90 days of issuance of this permit. If, when the permit is issued the permittee was not sampling in this manner but a change in process necessitates this form of sampling, then the plan must be submitted 30 days before the change occurs. This plan is to detail how representative samples are to be obtained and should include elements presented in Section 2.13 of the latest version of the EPA Region VIII Biosolids Management Handbook. The number of samples collected will be at least as many as those that would be collected annually as required from the amount of sludge produced (i.e. six for this facility).
- iii. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations: 1) For biosolids stability/volatile solids reduction, samples shall be taken before digestion and dewatering (or other stabilization processes) and after the biosolids has been digested and/or dewatered (or otherwise stabilized) but prior to transport or disposal; 2) For all other parameters, samples shall be taken after digestion and/or dewatering (or other stabilization processes) but prior to transport or disposal. All samples shall be representative of the biosolids stream being sampled.

*"Beneficial Use" means the use of nutrients and/or moisture in the biosolids to act as a soil conditioner or low-grade fertilizer for the promotion of vegetative growth on land.

Analytical and Sampling Methods for Monitoring

Sample collection, preservation, and analysis shall be performed in a manner consistent with the requirements of the Biosolids Regulations, 64 (5CCR 1002-64) and/or other criteria specified in this permit. Metals analyses are to be performed using method SW 846 with samples prepared in accordance with method 3050. The methods are also described in the latest version of the EPA Region VIII Biosolids Management Handbook.

e. Records

Biosolids which are Class A with respect to pathogens and which meet the monthly pollutant concentration limits identified in Part I.A.9.a. shall comply with the recordkeeping requirements identified in sections 4.e.i. (A) through 4.e.i.(C), below. If the biosolids are Class B with respect to pathogens, or if any pollutant limited in Part I.A.9.a. increases to the point where the biosolids no longer meet the monthly average pollutant concentration limits in Part I.A.9.a., the permittee shall comply with all of the recordkeeping requirements identified below:

- i. The permittee is required to have access to the following information for at least 5 years:

- (A) Test results showing the concentration of each pollutant in Part I.A.9.a.;
- (B) A description of how the pathogen reduction requirements in Part I.A.9.b. were met;
- (C) A description of how the vector attraction reduction requirements in Part I.A.9.c. were met;
- (D) A description of how the management practices in Part I.A.9.d. were met (if necessary);
- (E) A description of how the site restrictions in Part I.A.9.b. were met (if necessary); and
- (F) The following certification statement:

"I certify under the penalty of law, that the pathogen requirements in Part I.A.9.b., one of the vector attraction reduction alternatives in Part I.A.9.c., the management practices in Part I.A.9.d. (if necessary) and the site restrictions in Part I.A.9.b. (if necessary) have been met. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction requirements, the management practices and the site restrictions have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."

B. MONITORING REQUIREMENTS

3. Biosolids Parameters (continued)

ii. Records of monitoring information shall include the following:

- (A) The date, exact place, and time of sampling or measurements and the initials or name(s) of the individual(s) who performed the sampling or measurements;
- (B) The date(s) and times analyses were performed;
- (C) The initials or name(s) of individual(s) who performed the analyses;
- (D) All references and written procedures, when available, for the analytical techniques or methods used; and
- (E) The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

iii. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit for the life of the permit. Data collected on site, copies of Biosolids Report forms, and a copy of this permit must be maintained on site during the duration of activity at the permitted location.

4. Chronic WET Testing-Outfall 001A

a. Testing and Reporting Requirements

Tests shall be done at the frequency listed in Part I.B.2. Test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the reporting period during which the sample was taken. (i.e., WET testing results for the first calendar quarter ending March 31 shall be reported with the DMR due April 28.) The results shall be submitted on the Chronic Toxicity Test report form, available from the Division. Copies of these reports are to be submitted to both the Division and EPA along with the DMR.

The permittee shall conduct each chronic WET test in general accordance with methods described in Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-89/001 or the most current edition, except as modified by the most current Division guidance document entitled Guidelines for Conducting Whole Effluent Toxicity Tests. The permittee shall conduct such tests using *Ceriodaphnia dubia* and fathead minnows.

b. Failure of Test and Division Notification

A chronic WET test is failed whenever there is a statistically significant difference in lethality between the control and any effluent concentration less than or equal to the instream waste concentration ("IWC"). The IWC for this permit has been determined to be 86%. The permittee must provide written notification of the failure of a WET test to the Division, along with a statement as to whether a Preliminary Toxicity Investigation ("PTI")/Toxicity Identification Evaluation ("TIE") or accelerated testing is being performed. Notification must be received by the Division within 21 calendar days of the demonstration of chronic WET in the routine required test. "Demonstration" for the purposes of Parts I.B.4(b),(c),(d), (e) and (g) means no later than the last day of the laboratory test.

c. Automatic Compliance Schedule Upon Failure of Test

If a routine chronic WET test is failed, the following automatic compliance schedule shall apply. As part of this, the permittee shall either:

- i. Proceed to conduct the PTI/TIE investigation as described in Part I.B.4.d, or
- ii. Conduct accelerated testing using the single species found to be more sensitive.

If accelerated testing is being performed, the permittee shall provide written notification of the results within 14 calendar days of completion of the "Pattern of Toxicity"/"No Toxicity" demonstration. Testing will be at least once every two weeks for up to five tests until; 1) two consecutive tests fail or three of five tests fail, in which case a pattern of toxicity has been demonstrated or 2) two consecutive tests pass or three of five tests pass, in which case no pattern of toxicity has been found. If no pattern of toxicity is found, the toxicity episode is considered to be ended and routine testing is to resume. If a pattern of toxicity is found, a PTI/TIE investigation is to be performed. If a pattern of toxicity is not demonstrated but a significant level of erratic toxicity is found, the Division may require an increased frequency of routine monitoring or some other modified approach.

MONITORING REQUIREMENTS (continued)

d. PTI/TIE

The results of the PTI/TIE investigation are to be received by the Division within 120 days of the demonstration of chronic WET in the routine test, as defined above, or if accelerated testing is performed, the date the pattern of toxicity is demonstrated. A status report is to be provided to the Division at the 30, 60, and 90-day points of the PTI/TIE investigation. The Division may extend the period for investigation where reasonable justification exists. A request for an extension must be made in writing and received before the 120-day deadline. Such request must include a justification and supporting data for such an extension.

The permittee may use the time for investigation to conduct a PTI or move directly into the TIE. A PTI consists of a brief search for possible sources of WET, which might reveal causes of such toxicity and appropriate corrective actions more simply and cost effectively than a formal TIE. If the PTI allows resolution of the WET incident, the TIE need not necessarily be conducted. If, however, WET is not identified or resolved during the PTI, the TIE must be conducted within the allowed 120 day time frame.

Any permittee that is required to conduct a PTI/TIE investigation shall do so in conformance with procedures identified in the following documents, or as subsequently updated: 1) Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F May 92, 2) Methods for Aquatic Toxicity Identification Evaluations, Phase I Toxicity Characterization Procedures, EPA/600/6-91/003 Feb. 91 and 3) Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures, EPA/600/3-88/035 Feb. 1989.

A fourth document in this series is Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures, EPA/600/3-88/036 Feb. 1989. As indicated by the title, this procedure is intended to confirm that the suspected toxicant is truly the toxicant. This investigation is optional.

Within 90 days of the determination of the toxicant or no later than 210 days after demonstration of toxicity, whichever is sooner, a control program is to be developed and received by the Division. The program shall set down a method and procedure for elimination of the toxicity to acceptable levels.

Request For Relief

The permittee may request relief from further investigation and testing where the toxicant has not been determined and suitable treatment does not appear possible. In requesting such relief, the permittee shall submit material sufficient to establish the following:

- i. It has complied with terms and conditions of the permit compliance schedule for the PTI/TIE investigation and other appropriate conditions as may have been required by the WQCD;
- ii. During the period of the toxicity incident it has been in compliance with all other permit conditions, including, in the case of a POTW, pretreatment requirements;
- iii. During the period of the toxicity incident it has properly maintained and operated all facilities and systems of treatment and control; and
- iv. Despite the circumstances described in paragraphs (i) and (iii) above, the source and/or cause of toxicity could not be located or resolved.

If deemed appropriate by the Division, the permit or the compliance schedule may be modified to revise the ongoing monitoring and toxicity investigation requirements to avoid an unproductive expenditure of the permittee's resources, provided that the underlying obligation to eliminate any continuing ☉ of the toxicity limit shall remain.

f. Spontaneous Disappearance

If toxicity spontaneously disappears at any time after a test failure, the permittee shall notify the Division in writing within 14 days of a demonstration of disappearance of the toxicity. The Division may require the permittee to develop and submit additional information, which may include, but is not limited to, the results of additional testing. If no pattern of toxicity is identified or recurring toxicity is not identified, the toxicity incident response is considered closed and normal WET testing shall resume.

MONITORING REQUIREMENTS (continued)

3. Toxicity Reopener

This permit may be reopened and modified (following proper administrative procedures) to include new compliance dates, additional or modified numerical permit limitations, a new or different compliance schedule, a change in the whole effluent toxicity testing protocol, or any other conditions related to the control of toxicants if one or more of the following events occur:

- i. Toxicity has been demonstrated in the effluent and the permit does not contain a toxicity limitation.
- ii. The PTI/TIE results indicate that the identified toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits and the permit issuing authority agrees that the control of such toxicants through numerical limits is the most appropriate course of action.
- iii. The PTI/TIE reveals other unique conditions or characteristics, which, in the opinion of the permit issuing authority, justify the incorporation of unanticipated special conditions in the permit.

FOOTNOTES

a/ - The thirty (30) day average is defined as being the arithmetic mean of the analytical results for all samples collected during a thirty (30) consecutive day period. The permittee shall report the arithmetic mean of all self-monitoring sample data collected during the calendar month on the Discharge Monitoring Reports. No individual sample result may be used for more than one thirty (30) day average. (For fecal coliform determinations, see footnote c/).

b/ - The seven (7) day average shall be determined by an arithmetic mean of the analytical results for all samples collected during a seven (7) consecutive day period. Such seven (7) day averages shall be calculated for all calendar weeks, which are defined as beginning on Sunday and ending on Saturday. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the seven (7) day average calculated for that calendar week shall be associated with the month that contains the Saturday. No individual sample result may be used for more than one (1) seven (7) day average. (For fecal coliform determinations, see footnote c/).

c/ - For fecal coliform bacteria concentrations, the thirty (30) day and seven (7) day averages shall be determined as explained in footnotes a/ and b/ above, respectively, except that the geometric mean shall be used instead of the arithmetic mean. The geometric mean may be calculated using two different methods. For the methods shown, a, b, c, d, etc. are individual sample results, and n is the total number of samples.

Method 1:

Geometric Mean = $(a * b * c * d * \dots)^{(1/n)}$ "*" -- means multiply

Method 2:

Geometric Mean = $\text{antilog} ((\log(a) + \log(b) + \log(c) + \log(d) + \dots) / n)$

Graphical methods, even though they may also employ the use of logarithms, may introduce significant error and may not be used.

In calculating the geometric mean, for those individual sample results that are reported by the analytical laboratory to be "less than" a numeric value, the numeric value shall be used in the calculations unless the result is "less than 2.2". If the result is "less than 2.2", use a value of 1 in the calculations. If all individual analytical results for the month are reported to be less than numeric values, then report "less than" the largest of those numeric values on the monthly DMR. Otherwise, report the calculated value.

For any individual analytical result of "too numerous to count" (TNTC), that analysis shall be considered invalid and another sample shall be promptly collected for analysis. If another sample cannot be collected within the same sampling period for which the invalid sample was collected (during the same month if monthly sampling is required, during the same week if weekly sampling is required, etc.), then the following procedures apply:

- i. A minimum of two samples shall be collected for coliform analysis within the next sampling period.
- ii. If the sampling frequency is monthly or less frequent: For the period with the invalid sample results, leave the spaces on the corresponding DMR for reporting coliform results empty and attach to the DMR a letter noting that a result of TNTC was obtained for that period, and explain why another sample for that period had not been collected.

FOOTNOTES (continued)

If the sampling frequency is more frequent than monthly: Eliminate the result of TNTC from any further calculations, and use all the other results obtained within that month for reporting purposes. Attach a letter noting that a result of TNTC was obtained, and list all individual analytical results and corresponding sampling dates for that month.

d/ - The "Daily Maximum" limitation for this parameter shall be applied as an instantaneous maximum (or, for pH or DO, instantaneous minimum) value. The instantaneous value is defined as the analytical result of any individual sample. Report the maximum (and/or minimum) of all instantaneous values within the calendar month. Any instantaneous value beyond the noted daily maximum limitation for the indicated parameter shall be considered a violation of this permit.

e/ - The "Daily Maximum" limitation for this parameter shall be applied as a maximum daily average. The daily average is defined as the arithmetic mean of the analytical results for all samples collected during a 24-hour period. If only one sample is collected during the 24-hour period, the analytical result for that single sample shall be used as the daily average. Report the maximum of all daily average values within the calendar month. Any daily average beyond the noted daily maximum limitation for the indicated parameter shall be considered a violation of this permit.

f/ - Definitions for sample types are as follows:

- i. A "recorder" requires the continuous operation of a chart and/or totalizer (or drinking water rotor meters or pump hour meters where previously approved).
- ii. A "composite" sample, for monitoring requirements, is defined as a minimum of four (4) grab samples collected at equally spaced two (2) hour intervals and proportioned according to flow.
- iii. A "24 hour composite" sample is a combination of at least eight (8) sample aliquots of at least 100 milliliters, collected at equally spaced intervals during the operating hours of a facility over a twenty-four (24) hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the wastewater or effluent flow at the time of sampling or the total wastewater or effluent flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.
- iv. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected to be representative of the parameter being monitored.
- v. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement using existing monitoring facilities.
- vi. A "sludge composite" sample is a representative sample of sludge from a wastewater treatment process unit, storage unit or stabilization process unit. The sample shall consist of a minimum of three grab samples of 500 milliliters each taken at the start, middle and end of a pumping cycle, or if discharge is continuous or of a cyclical nature, grab samples of 250 milliliters each shall be taken four times during a twenty-four (24) hour period and combined. Compositing samples of semi-dewatered, dewatered and dried sludge shall consist of a minimum of four (4) grab samples of 0.5 kilograms each taken four times during a twenty-four (24) hour period and combined.

g/ - Monitoring is required only when chlorine is used for disinfection. In the calculation of average total residual chlorine concentrations, those analytical results that are less than the method detection limit shall be considered zero for calculation purposes. If all individual analytical results that would be used in the calculations are below the method detection limit, then "less than \bar{x} ," where \bar{x} is the method detection limit, shall be reported on the monthly DMR. Otherwise, report the calculated value.

For purposes of this permit the method detection limits of the DPD colorimetric and the Amperometric titration methods of analysis for total residual chlorine are as follows:

Method	Method Detection Limit, mg/l
DPD colorimetric	0.10 mg/l
Amperometric titration	0.05 mg/l

If, during the life of this permit, there are improvements in approved analytical procedures that result in lower detection limits, this permit may be reopened to propose the incorporation of those detection limits into this permit. Modification of the permit will be in accordance with the requirements of 40 CFR, Part 124.

FOOTNOTES (continued)

If visible sheen is noted, a grab sample shall be collected and analyzed for oil and grease. The results are to be reported on the DMR under parameter 03582.

l/ - When the measurement frequency indicated is quarterly, samples may be collected at any time during the calendar quarter, with the results being reported on the monthly DMR corresponding to the last month of the quarter (March, June, September or December). If the discharge is intermittent, samples must be collected during the period when discharge occurs.

m/ - "(PD)" means potentially dissolved as defined in the Basic Standards and Methodologies [31.5(22)]. The selection of the sample preparation procedures (e.g., potentially dissolved) used in this permit was based on acceptable procedures that would best approximate the species of metal that was used in establishing water quality criteria for this metal in the receiving water. If there is a change in the species of metal upon which the water quality criterion is based and/or if a more appropriate sample preparation procedure is developed and it is acceptable to the division, the permittee may request that the permit be reopened to propose the appropriate modifications of the effluent limitations and self-monitoring requirements. Modifications of the permit will be in accordance with the requirements of 40 CFR, Part 124.

n/ - Metals and phenols must be analyzed by methods capable of producing calculated method detection limits equal to or less than the values listed below. In the calculation of average concentrations of metals, those analytical results that are less than the method detection limit shall be considered zero for calculation purposes. If all individual analytical results that would be used in the calculations are below the method detection limit, then "less than \bar{x} ," where \bar{x} is the method detection limit, shall be reported on the monthly DMR. Otherwise, report the calculated value.

Effluent Characteristic	Method Detection Limits, ug/l
Arsenic	10
Cadmium	0.5
Chromium	10
Chromium, Hexavalent	10
Copper	5
Lead	5
Mercury	0.003
Nickel	20
Phenols	50
Selenium	10
Silver	0.2
Zinc	10

If during the life of this permit, the Division considers the use of analytical procedures capable of producing lower method detection limits to be appropriate for any of the above pollutants, this permit may be amended, in accordance with the Colorado Discharge Permit System Regulations (5 CCR 1002-61), in order to modify the method detection limits listed above.

o/ - Metals concentrations measured in compliance with the effluent monitoring requirements listed in Part I.B.2. of this permit may be used to satisfy any pretreatment or industrial waste management metals monitoring requirements listed in Part I.A.8., with the potentially dissolved, dissolved, or total recoverable concentrations, as specified in Part I.B.2., being substituted for the total metals concentrations specified in Part I.A.8. However, the special sampling procedures (e.g. 24-hour composite samples) specified in Part I.A.8. must be followed. For hexavalent chromium, special provisions apply – see footnote m/.

p/ - For hexavalent chromium, samples must be un-acidified to prevent conversion of the trivalent species to the hexavalent species. Accordingly, dissolved concentrations will be measured rather than potentially dissolved concentrations. In addition, the holding time must be under 24-hours. If performing 24-hour composite sampling for dissolved hexavalent chromium, the sample must be refrigerated during collection and laboratory analysis of the sample must begin within 2 hours after the last aliquot is collected.

q/ - Due to the fact that there is no reliable method of measuring free cyanide in a chlorinated effluent, the American Society for Testing and Materials (ASTM) analytical procedure D2036-81, Method C, which detects weak acid dissociable cyanides, shall be the analytical procedure used. The lower method detection limit for the analysis described above must be at least as low as 0.030 mg/l. In the calculation of average concentrations of cyanide, those analytical results that are less than the method detection limit shall be considered zero for calculation purposes. If all individual analytical results that would be used in the calculations are below the method detection limit, then "less than \bar{x} ," where \bar{x} is the method detection limit, shall be reported on the monthly DMR. Otherwise, report the calculated value.

ADDITIONAL MONITORING REQUIREMENTS

Representative Sampling

Samples and measurements taken for the respective identified monitoring points as required herein shall be representative of the volume and nature of: 1) all influent wastes received at the facility, including septage, biosolids, etc.; 2) the monitored effluent discharged from the facility; and 3) biosolids produced at the facility. All samples shall be taken at the monitoring points specified in this permit and, unless otherwise specified, before the influent, effluent, or biosolids wastestream joins or is diluted by any other wastestream, body of water, or substance. Monitoring points shall not be changed without notification to and prior approval by the Division.

2. Influent and Effluent Sampling Points

Influent and effluent sampling points shall be so designed or modified so that: 1) a sample of the influent can be obtained after preliminary treatment and prior to primary or biological treatment and 2) a sample of the effluent can be obtained at a point after the final treatment process and prior to discharge to state waters. The permittee shall provide access to the Division to sample at these points.

3. Analytical and Sampling Methods for Monitoring

The permittee shall install, calibrate, use and maintain monitoring methods and equipment, including biological and indicated pollutant monitoring methods. Analytical and sampling methods utilized by the discharger shall be approved methods as defined by the Regulations for Effluent Limitations (5 CCR 1002-62, 62.5), Federal regulations (40 CFR 136) and any other applicable State or Federal regulations.

When requested in writing, the Water Quality Control Division may approve an alternative analytical procedure or any significant modification to an approved procedure.

4. Records

a. The permittee shall establish and maintain records. Those records shall include, but not be limited to, the following:

- i. The date, type, exact place, and time of sampling or measurements;
- ii. The individual(s) who performed the sampling or measurements;
- iii. The date(s) the analyses were performed;
- iv. The individual(s) who performed the analyses;
- v. The analytical techniques or methods used; and
- vi. The results of such analyses.

b. The permittee shall retain for a minimum of three (3) years records of all monitoring information, including all original strip chart recordings for continuous monitoring instrumentation, all calibration and maintenance records, copies of all reports required by this permit and records of all data used to complete the application for this permit. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Division or Regional Administrator.

5. Additional Monitoring by Permittee

If the permittee, using the approved analytical methods, monitors any parameter more frequently than required by this permit, then the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form or other forms as required by the division. Such increased frequency shall also be indicated.

6. Flow Measuring Devices

Flow metering at the headworks shall be provided to give representative values of throughput and treatment of the wastewater system. The metering device shall be equipped with a local flow indication instrument and a flow indication-recording-totalization device suitable for providing permanent flow records, which should be in the plant control building. For mechanical facilities, where influent flow metering is not practical and the same results may be obtained from metering at the effluent end of the treatment facility, this type of flow metering arrangement will be considered. For lagoons, an instantaneous or continuous effluent flow-measuring device shall be required in addition to the above-described influent flow-measuring device. At the request of the Division, the permittee must be able to show proof of the accuracy of any flow-measuring device used in obtaining data submitted in the monitoring report. The flow-measuring device must indicate values within ten (10) percent of the actual flow entering the facility.

REPORTING

Signatory Requirements

All reports, and other information required by the Division shall be signed and certified for accuracy by the permittee in accord with the following criteria:

- a. In the case of corporations, by a principal executive officer of at least the level of vice-president or his or her duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge described in the form originates;
- b. In the case of a partnership, by a general partner;
- c. In the case of a sole proprietorship, by the proprietor;
- d. In the case of a municipal, state, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

The permittee shall make the following certification on all such documents:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

2. Monthly Reports

Monitoring results shall be summarized for each month and reported on the Discharge Monitoring Report forms (EPA forms 3320-1). The forms shall be mailed to the agencies listed below so that they are received by the agencies no later than the 28th day of the following month. If no discharge occurs during the reporting period, "No Discharge" shall be reported.

The Discharge Monitoring Report forms shall be filled out accurately and completely in accordance with the requirements of this permit and the instructions on the forms, and shall be signed by an authorized person as identified in the preceding section, Part I.D.1. The Discharge Monitoring Report forms consist of four pages -- the top "original" copy, and three attached no-carbon-required copies. After the DMR form has been filled out and signed, the four copies must be separated and distributed as follows.

The top, original copy of each form shall be submitted to the following address:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
WATER QUALITY CONTROL DIVISION
WQCD-P-B2
4300 CHERRY CREEK DRIVE SOUTH
DENVER, CO 80246-1530

The second copy of each form shall be submitted to the following address:

U. S. ENVIRONMENTAL PROTECTION AGENCY
TECHNICAL ENFORCEMENT PROGRAM 8ENF-T
OFFICE OF ENFORCEMENT, COMPLIANCE ASSISTANCE, AND ENVIRONMENTAL JUSTICE
999 18th STREET SUITE 300
DENVER, CO 80202-2466

The third and fourth copies are for the permittee's records.

3. Annual Biosolids Report

The permittee shall provide the results of all biosolids monitoring performed in accordance with Part I.B.4, and information on management practices, land application sites, site restrictions and certifications. Such information shall be provided no later than February 19th of each year. Reports shall be submitted addressing all such activities that occurred in the previous calendar year. If no biosolids were applied to the land during the reporting period, "no biosolids applied" shall be reported. Until further notice, biosolids monitoring results shall be reported on forms, or copies of forms, provided by the Division. Annual Biosolids Reports required herein, shall be signed and certified in accordance with the Signatory Requirements, Part I.D.1, and submitted as follows:

REPORTING

Annual Biosolids Report (continued)

The original copy of each form shall be submitted to the following address:

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT,
WATER QUALITY CONTROL DIVISION
WQCD-PERMITS-B2
4300 CHERRY CREEK DRIVE SOUTH
DENVER, COLORADO 80246-1530

A copy of each form shall be submitted to the following address:

WATER PROGRAM REGIONAL BIOSOLIDS PROGRAM
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION VIII, P2-W-P
999 18TH STREET, SUITE 300
DENVER, CO 80202-2466
ATTENTION: BIOSOLIDS PROGRAM MANAGER

4. Special Notifications

a. Definitions

- i. Bypass: The intentional diversion of waste streams from any portion of a domestic wastewater treatment works.
- ii. Severe Property Damage: A) Substantial physical damage to property at the treatment facilities to cause them to become inoperable, or B) substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.
- iii. Spill: An incident in which flows or solid materials are accidentally or unintentionally allowed to flow or escape so as to be lost from the domestic wastewater treatment works as defined in the Colorado Water Quality Control Act, which may cause pollution of state waters.
- iv. Upset: An exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Noncompliance Notification

- i. If, for any reason, the permittee does not comply with or will be unable to comply with any maximum discharge limitations, standards or conditions specified in this permit, the permittee shall, at a minimum, provide the Water Quality Control Division and EPA with the following information:
 - (A) A description of the discharge and cause of noncompliance.
 - (B) The period of noncompliance, including exact dates and times and/or the anticipated time when the discharge will return to compliance; and
 - (C) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.
- ii. The following instances of noncompliance shall be reported orally within twenty-four (24) hours from the time the permittee becomes aware of the circumstances. A written report, containing the information requested in Part I.D.4.b)(i), above, shall be mailed to the Division within five (5) days of the time the permittee becomes aware of the circumstances.
 - (A) Any instance of noncompliance, which may endanger human health or the environment, regardless of the cause for the incident.
 - (B) Any unanticipated bypass, or any upset or spill, which causes any permit limitation to be exceeded.
 - (C) Any suspected discharge of toxic pollutants or hazardous substances, which are listed in Part III. Of this permit, in excess of a daily maximum limit or where there is no limit for the toxic pollutant or hazardous substance in question.

4. Special Notifications (continued)

- iii. The permittee shall report all other instances of noncompliance, which are not required to be reported within twenty-four (24) hours, at the time Discharge Monitoring Reports are submitted, except as required in (iv) below. The reports shall contain the information listed in "Noncompliance Notification" (paragraph (i) above).
- iv. If the permittee knows in advance of the need for a bypass, it shall submit written notification to the division of the need for such bypass at least ten days before the date of the contemplated bypass.

c. Submission of Incorrect or Incomplete Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or report to the division, it shall promptly submit such facts or information.

d. Compliance Schedule Notification

No later than fourteen (14) calendar days following a date identified in the compliance schedules in this permit, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

e. Change in Discharge or Wastewater Treatment Facility

The permittee shall inform the Division (Permits Unit) in writing of any intent to construct, install, or alter any process, facility, or activity that is likely to result in a new or altered discharge either in terms of location or effluent quality prior to the occurrence of the new or altered discharge, and shall furnish the Division such plans and specifications which the Division deems reasonably necessary to evaluate the effect on the discharge and receiving stream.

Notice is required only when:

- i. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged; or
- ii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported pursuant to an approved land application plan.

If the Division finds that such new or altered discharge might be inconsistent with the conditions of the permit, the Division shall require a new or revised permit application and shall follow the procedures specified in the Colorado Discharge Permit System Regulations, 5CCR 1002.61, Sections 61.5 through 61.6, and 61.15 prior to the date that the new or altered discharge takes place.

f. Deactivation

The permittee shall notify the Permits Unit of the Division within thirty (30) days of deactivation of the permitted facility. Deactivation includes ceasing operation of the facility, ceasing all discharges to State Waters for the remaining term of the existing permit and/or the connection to another wastewater treatment facility.



LOVELAND WATER/ WASTEWATER MASTER PLAN

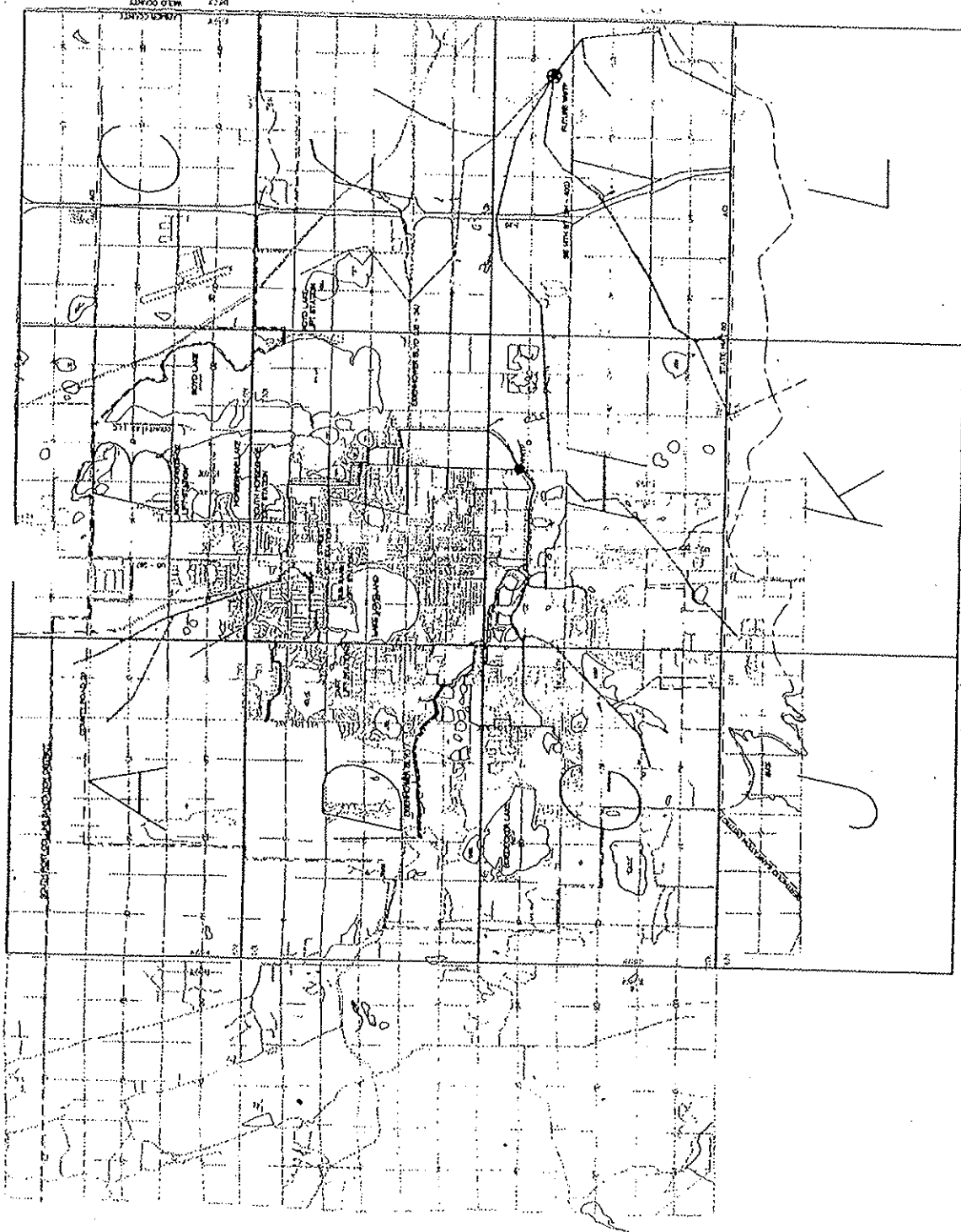
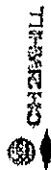
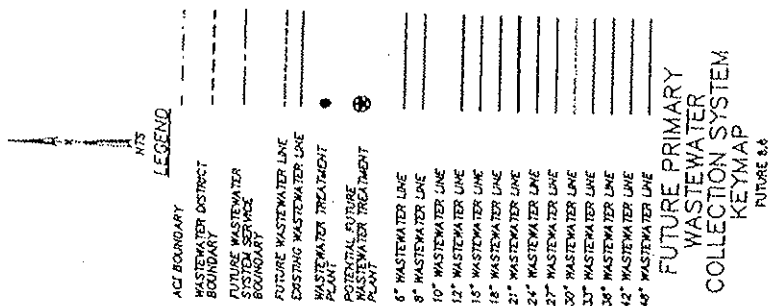


FIGURE 1
LOVELAND - WWTP FACILITY
SITE LOCATION



LOVELAND WATER/ WASTEWATER MASTER PLAN

LEGEND

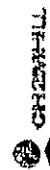
	City Limit
	Residential - Single-Family
	Major Commercial
	Industrial
	Highway
	100 Year Floodplain
	Phonography
	County
	Area of Community
	Portland Boundary
	Airport Area of Influence
	Other Areas of Influence

This figure was developed for water and wastewater modeling using the SWMM 5.2.10 model prepared by the City of Loveland Long Range Planning Division, adopted October 12, 1994 and revised September 25, 1996.



LAND USE CHARACTERIZATION

FIGURE 2.5



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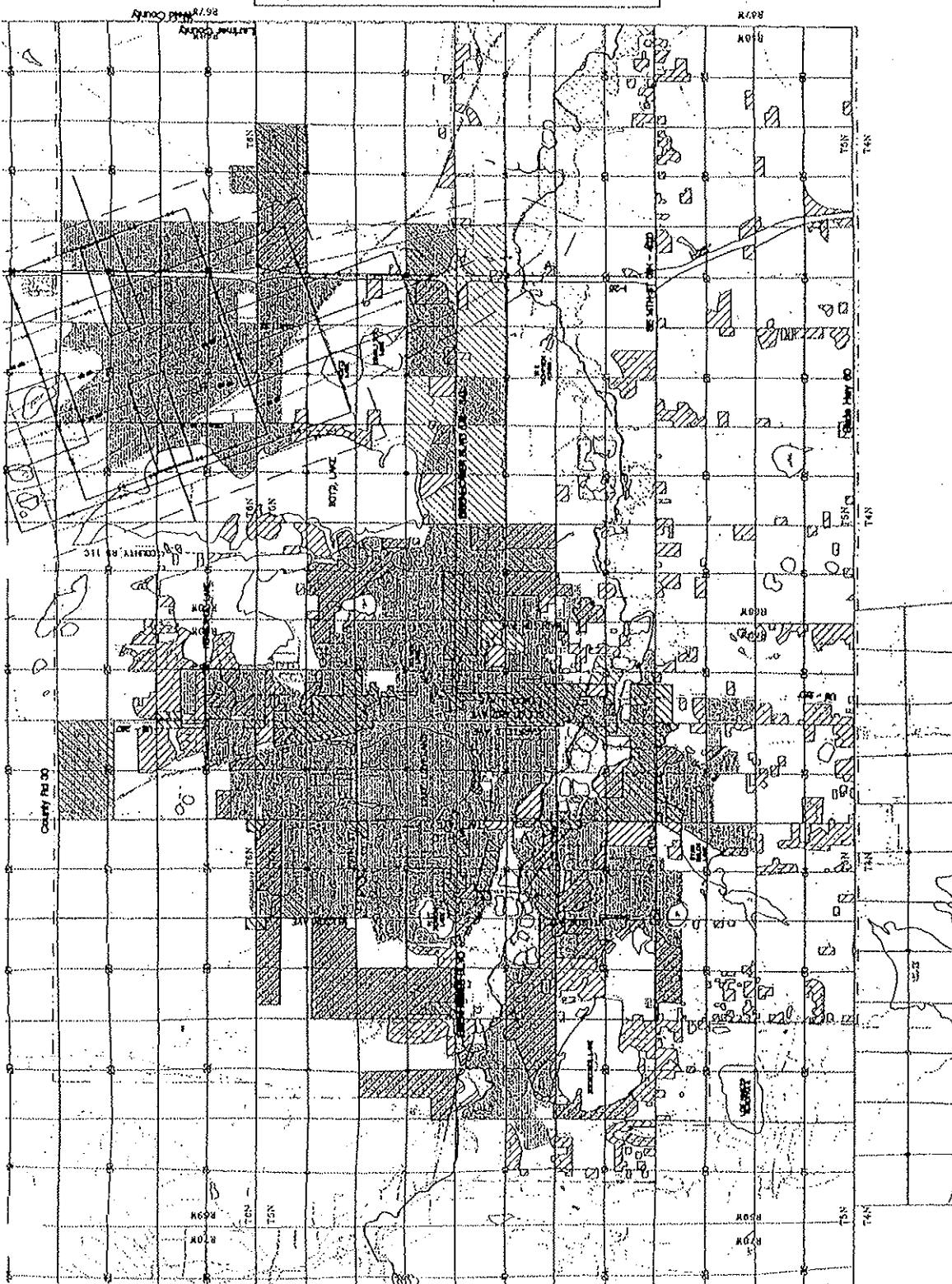
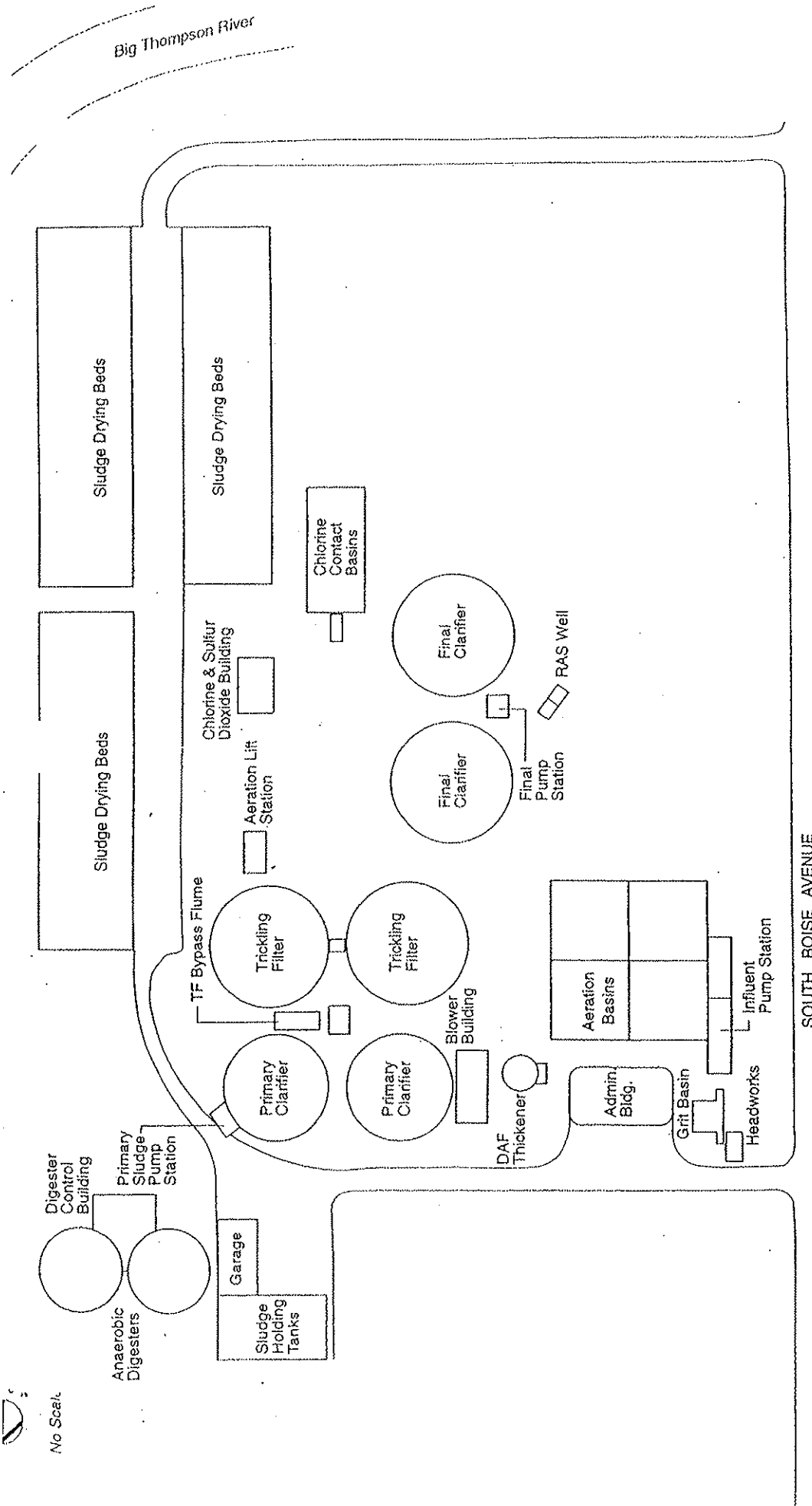


FIGURE 2
LOVELAND WASTEWATER TREATMENT FACILITY
DISCHARGE LOCATION - OUTFALL 001



Drawn: 1/17/2019, d/10/17/2019

Figure 1
Existing Loveland WWTP
Site Layout

FIGURE 3
LOVELAND WASTEWATER TREATMENT FACILITY
FACILITY FLOW DIAGRAM

PART II

MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

1. Bypass

- a. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure optimal operation. These bypasses are not subject to the provisions noted in item b., below. Division notification is not required.
- b. A bypass which causes effluent limitations to be exceeded is prohibited, and the division may take enforcement action against a permittee for such a bypass, unless:
 - i. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - ii. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
 - iii. The permittee submitted notices as required in "Non-Compliance Notification," Part I, Section D

2. Upsets

a. Effect of an Upset

An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of paragraph (b) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

b. Conditions Necessary for a Demonstration of Upset

A permittee who wishes to establish the affirmative defense of upset shall demonstrate through properly signed contemporaneous operating logs, or other relevant evidence that:

- i. An upset occurred and that the permittee can identify the specific cause(s) of the upset;
- ii. The permitted facility was at the time being properly operated and maintained; and
- iii. The permittee submitted notice of the upset as required in Part I, Section C of this permit (24-hour notice).
- iv. The permittee took all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment.

In addition to the demonstration required above, if the permittee who wishes to establish the affirmative defense of upset for a violation of effluent limitations based upon water quality standards, they shall also demonstrate through monitoring, modeling or other methods that the relevant standards were achieved in the receiving water.

c. Burden of proof

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

3. Reduction, Loss, or Failure of Treatment Facility

The permittee has the duty to halt or reduce any activity if necessary to maintain compliance with the effluent limitations of the permit. Upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with this permit, control sources of wastewater, or all discharges, or both until the facility is restored or an alternative method of treatment is provided. This provision also applies to power failures, unless an alternative power source sufficient to operate the wastewater control facilities is provided.

MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

Reduction, Loss, or Failure of Treatment Facility (continued)

In an enforcement action a permittee shall not use a defense that it would be necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State.

For all domestic wastewater treatment works, the permittee shall dispose of sludge in accordance with State and Federal regulations.

5. Minimization of Adverse Impacts

The permittee shall take all reasonable steps to minimize or prevent any adverse impact to waters of the State resulting from any discharge. As necessary, accelerated or additional monitoring of the influent or effluent will be required to determine the nature and impact of noncompliance.

6. Discharge Point

Any discharge to the waters of the State from a point source other than specifically authorized herein is prohibited.

7. Inspections and Right to Entry

The permittee shall allow the Director of the Division, and/or authorized representatives, upon the presentation of credentials:

- a. To enter upon the permittee's premises where a regulated facility or activity is located or in which any records are required to be kept under the terms and conditions of this permit;
- b. At reasonable times to have access to inspect and copy any records required to be kept under the terms and conditions of this permit and to inspect any monitoring equipment or monitoring method required in the permit; and
- c. To enter upon the permittee's premises in a reasonable manner and at a reasonable time to inspect and/or investigate any actual, suspected, or potential source of water pollution, or to ascertain compliance or noncompliance with any applicable state or federal statute or regulation or any order promulgated by the division. The investigation may include, but is not limited to the following: sampling of any discharge and/or process waters, the taking of photographs, interviewing of any persons having any knowledge related to the discharge permit or alleged violation, access to any and all facilities or areas within the permittee's premises that may have any affect on the discharge, permit, or alleged violation. Such entry is also authorized for the purpose of inspecting and copying records required to be kept concerning any effluent source.

In the making of such inspections, investigations, and determinations, the Division, insofar as practicable, may designate as its authorized representatives any qualified personnel of the Department of Agriculture. The Division may also request assistance from any other state or local agency or institution.

- d. The Division shall split samples taken by the Division during any investigation with the permittee if requested to do so by the permittee.

8. Duty to Provide Information

The permittee shall furnish to the division, within a reasonable time, any information which the division may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

9. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Clean Water Act and the Colorado Discharge Permit System Regulations 5 CCR 1002-61, Section 61.5 (4)(b), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division and the Regional Administrator.

MANAGEMENT REQUIREMENTS AND RESPONSIBILITIES

Availability of Reports (continued)

As required by the Federal Clean Water Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Clean Water Act, and Section 25-8-610 C.R.S.

10. Transfer of Ownership or Control

A permit may be transferred to a new permittee only upon the completion of the following:

- a. The current permittee notifies the division in writing 30 days in advance of the proposed transfer date;
- b. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage and liability between them; and
- c. The Division does not notify the existing permittee and the proposed new permittee of its intent to modify, or revoke and reissue, the permit.
- d. Fee requirements of the Colorado Discharge Permit System Regulations, Section 61.15 have been met.

11. Contract Requirements

The permittee shall include pertinent terms and conditions of this permit in all contracts for receipt by the permittee of any effluent not required to be received by the permittee.

ADDITIONAL CONDITIONS

Permit Violations

Failure to comply with any terms and/or conditions of this permit shall be a violation of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.

2. Civil and Criminal Liability

Except as provided in Part I, Section C and Part II, Section A, nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance (See 40 CFR 122.60)

3. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibility, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.

4. Division Emergency Power

Nothing in this permit shall be construed to prevent or limit application of any emergency power of the division.

5. Severability

The provisions of this permit are severable. If any provisions of this permit, or the application of any provision of this permit in any circumstance, are held invalid, the application of such provision to other circumstances and the application of the remainder of this permit shall not be affected.

Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 (Oil and Hazardous Substance Liability) of the Clean Water Act, except as recognized by federal law.

ADDITIONAL CONDITIONS (continued)

Property Rights

The issuance of this permit does not convey any property or water rights in either real or personal property or stream flow or any exclusive privileges, nor does it authorize any injury to private property, any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

8. Modification, Suspension, or Revocation of Permit

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

All permit modification, termination, or revocation and reissuance actions shall be subject to the requirements of the Colorado Discharge Permit System Regulations, Sections 61.5 (b&c), 61.6, 61.7, and 61.15, except for minor modifications.

- a. This permit may be modified, suspended, or terminated in whole or in part during its term for reasons determined by the Division including, but not limited to, the following:
 - i. Violation of any terms or conditions of the permit;
 - ii. Obtaining a permit by misrepresentation or failing to disclose any fact which is material to the granting or denial of a permit or to the establishment of terms or conditions of the permit; or
 - iii. Materially false or inaccurate statements or information in the permit application of the permit; or
 - iv. A determination that the permitted activity endangers human health or the classified or existing uses of state waters and can only be regulated to acceptable levels by permit modifications or termination.

A permit may be modified in whole or in part for the following causes, provided that such modification complies with the provisions of Section 61.10:

- i. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.
- ii. The Division has received new information which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of different permit conditions at the time of issuance. For general permits, this cause includes information indicating that cumulative effects on the environment are unacceptable. For permits issued to new sources or new dischargers, this cause includes information derived from effluent testing required under Section 61.4 (7(e)). This provision allows a modification of the permit to include conditions that are less stringent than the existing permit only to the extent allowed under Section 61.10.
- iii. The standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued. Permits may be modified during their terms for this cause only as follows:
 - (A) The permit condition requested to be modified was based on a promulgated effluent limitation guideline, EPA approved water quality standard, or an effluent limitation set forth in 5 CCR 1002-62, ' 62.1 et seq.; and
 - (B) EPA has revised, withdrawn, or modified that portion of the regulation or effluent limitation guideline on which the permit condition was based, or has approved a Commission action with respect to the water quality standard or effluent limitation on which the permit condition was based; and
 - (C) The permittee requests modification as required in the Colorado Discharge Permit System Regulations after the notice of final action by which the EPA effluent limitation guideline, water quality standard, or effluent limitation is revised, withdrawn, or modified; or
 - (D) For judicial decisions, a court of competent jurisdiction has remanded and stayed EPA promulgated regulations or effluent limitation guidelines, if the remand and stay concern that portion of the regulations or guidelines on which the permit condition was based and a request is filed by the permittee in accordance with this Regulation, within ninety (90) days of judicial remand.

ADDITIONAL CONDITIONS

b. Modification, Suspension, or Revocation of Permit (continued)

- iv. The Division determines that good cause exists to modify a permit condition because of events over which the permittee has no control and for which there is no reasonable available remedy.
 - v. The permittee has received a variance.
 - vi. When required to incorporate applicable toxic effluent limitation or standards adopted pursuant to ' 307(a) of the Federal act.
 - vii. When required by the recopener conditions in the permit.
 - viii. As necessary under 40 C.F.R. 403.8(e), to include a compliance schedule for the development of a pretreatment program.
 - ix. When the level of discharge of any pollutant which is not limited in the permit exceeds the level which can be achieved by the technology-based treatment requirements appropriate to the permittee under Section 61.8 (b) of the Colorado Discharge Permit System Regulations.
 - x. To establish a pollutant notification level required in Section 61.8 © of the Colorado Discharge Permit System Regulations.
 - xi. To correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions, to the extent allowed in Section 61.10 of the Colorado Discharge Permit System Regulations.
 - xii. When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
 - xiii. For any other cause provided in Section 61.10 of the Colorado Discharge Permit System Regulations.
- c. Any condition set forth in the approval of the site location may become a condition of the permit, if so identified. Any site approval condition that is included in this permit pursuant to these regulations shall only be subject to enforcement through the Colorado Water Quality Control Act, C.R.S. 25-8-101, et seq.
- d. At the request of a permittee, the Division may modify or terminate a permit and issue a new permit if the following conditions are met:
- i. The Regional Administrator has been notified of the proposed modification or termination and does not object in writing within thirty (30) days of receipt of notification,
 - ii. The Division finds that the permittee has shown reasonable grounds consistent with the Federal and State statutes and regulations for such modifications or termination;
 - iii. Requirements of Section 61.15 of the Colorado Discharge Permit System Regulations have been met, and
 - iv. Requirements of public notice have been met.
- e. Permit modification (except for minor modifications), termination or revocation and reissuance actions shall be subject to the requirements of Sections 61.5 (2&3), 61.6, 61.7 and 61.15 of the Colorado Discharge Permit System Regulations. The Division shall act on a permit modification request, other than minor modifications requests, within 180 days of receipt thereof. Except for minor modifications, the terms of the existing permit govern and are enforceable until the newly issued permit is formally modified or revoked and reissued following public notice.
- f. Upon consent by the permittee, the Division may make minor permit modifications without following the requirements of Sections 61.5 (2&3), 61.7, and 61.15 of the Colorado Discharge Permit System Regulations. Minor modifications to permits are limited to:
- i. Correcting typographical errors; or
 - ii. Increasing the frequency of monitoring or reporting by the permittee; or
 - iii. Changing an interim date in a schedule of compliance, provided the new date of compliance is not more than 120-days after the date specific in the existing permit and does not interfere with attainment of the final compliance date requirement; or

ADDITIONAL CONDITIONS

8. Modification, Suspension, or Revocation of Permit (continued)

- iv. Allowing for a transfer in ownership or operational control of a facility where the Division determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage and liability between the current and new permittees has been submitted to the Division; or
 - v. Changing the construction schedule for a discharger which is a new source, but no such change shall affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge; or
 - vi. Deleting a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits; or
 - vii. Incorporating conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 C.F.R. 403.11 (or a modification thereto that has been approved in accordance with the procedures in 40 C.F.R. 403.18) as enforceable conditions of the POTW's permits.
- g. When the permit is modified, only the conditions subject to modification are reopened. If the permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term.
- h. The filing of a request by the permittee for a permit modification, revocation and reissuance or termination does not stay any permit condition.

All permit modifications and reissuances are subject to the antibacksliding provisions set forth in 61.10 (e) through (g) of the Colorado Discharge Permit System Regulations.

9. Permit Renewal Application

If the permittee desires to continue to discharge, a permit renewal application shall be submitted at least one hundred eighty (180) days before this permit expires. If the permittee anticipates there will be no discharge after the expiration date of this permit, the division must be promptly notified so that it can terminate the permit in accordance with Part II Section B.8.

10. Confidentiality

Any information relating to any secret process, method of manufacture or production, or sales or marketing data, which may be acquired, ascertained, or discovered, whether in any sampling investigation, emergency investigation, or otherwise, shall not be publicly disclosed by any member, officer, or employee of the commission or the division, but shall be kept confidential. Any person seeking to invoke the protection of this Subsection (10) shall bear the burden of proving its applicability. This section shall never be interpreted as preventing full disclosure of effluent data.

11. Fees

The permittee is required to submit an annual fee as set forth in the 1983 amendments to the Water Quality Control Act, Section 25-8-502 (1) (b), and the Colorado Discharge Permit System Regulations 5CCR 1002-61, Section 61.15 as amended. Failure to submit the required fee when due and payable is a violation of the permit and will result in enforcement action pursuant to Section 25-8-601 et. Seq., C.R.S. 1973 as amended.

PART III

CATEGORICAL INDUSTRIES

Aluminum Forming	Meat Products
Asbestos Manufacturing	Metal Finishing
Battery Manufacturing	Metal Molding and Casting (Foundries)
Builders' Paper and Board Mills	Mineral Mining and Processing
Canned & Preserved Fruits and Vegetables Processing	Nonferrous Metals Manufacturing
Canned & Preserved Seafood Processing	Nonferrous Metals Forming and Metal Powders
Carbon Black Manufacturing	Oil and Gas Extraction
Cement Manufacturing	Organic Chemicals, Plastics, and Synthetic Fibers
Coal Mining	Ore Mining and Dressing
Coil Coating	Paint Formulation
Copper Forming	Paving and Roofing Materials (Tars and Asphalt)
Dairy Products Processing	Pesticide Chemicals
Electrical and Electronic Components	Petroleum Refining
Electroplating	Pharmaceutical Manufacturing
Explosives Manufacturing	Phosphate Manufacturing
Feedlots	Photographic
Ferroalloy Manufacturing	Plastics Molding and Forming
Fertilizer Manufacturing	Porcelain Enameling
Glass Manufacturing	Pulp, Paper, and Paperboard Manufacturing
Grain Mills	Rubber Manufacturing
Gum and Wood Chemicals Manufacturing	Soap and Detergent Manufacturing
Hospital	Steam Electric Power Generating
Ink Formulation	Sugar Processing
Inorganic Chemicals Manufacturing	Textile Mills
Iron and Steel Manufacturing	Timber Products Processing
Leather Tanning and Finishing	

PRIORITY POLLUTANTS AND HAZARDOUS SUBSTANCES ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GC/MS)

files	Base/Neutral	Acid Compounds	Pesticides
ein	acenaphthene	2-chlorophenol	aldrin
onitrile	acenaphthylene	2,4-dichlorophenol	alpha-BHC
ene	anthracene	2,4,-dimethylphenol	beta-BHC
oform	benzidine	4,6-dinitro-o-cresol	gamma-BHC
on tetrachloride	benzo(a)anthracene	2,4-dinitrophenol	delta-BHC
obenzene	benzo(a)pyrene	2-nitrophenol	chlordane
odibromomethane	3,4-benzofluoranthene	4-nitrophenol	4,4'-DDT
oethane	benzo(ghi)perylene	p-chloro-m-cresol	4,4'-DDE
oroethylvinyl ether	benzo(k)fluoranthene	pentachlorophenol	4,4'-DDD
oform	bis(2-chloroethoxy)methane	phenol	dieldrin
orobromomethane	bis(2-chloroethyl)ether	2,4,6-trichlorophenol	alpha-endosulfan
ichlorethane	bis(2-chloroisopropyl)ether		beta-endosulfan
ichlorethane	bis(2-ethylhexyl)phthalate		endosulfan sulfate
ichlorethylene	4-bromophenyl phenyl ether		endrin
ichloropropane	butylbenzyl phthalate		endrin aldehyde
orpropylene	2-chloronaphthalene		heptachlor
ene	4-chlorophenyl phenyl ether		heptachlor epoxide
yl bromide	Chrysene		PCB-1242
yl chloride	dibenzo(a,h)anthracene		PCB-1254
ylene chloride	1,2-dichlorobenzene		PCB-1221

PRIORITY POLLUTANTS AND HAZARDOUS SUBSTANCES
ORGANIC TOXIC POLLUTANTS IN EACH OF FOUR FRACTIONS
IN ANALYSIS BY GAS CHROMATOGRAPHY/MASS SPECTROSCOPY (GC/MS)

files	Base/Neutral	Acid Compounds	Pesticides
2,2-tetrachloroethane	1,3-dichlorobenzene		PCB-1232
chloroethylene	1,4-dichlorobenzene		PCB-1248
ne	3,3-dichlorobenzidine		PCB-1260
trans-dichloroethylene	diethyl phthalate		PCB-1016
1-trichloroethane	dimethyl phthalate		toxaphene
1-trichloroethane	di-n-butyl phthalate		
loroethylene	2,4-dinitrotoluene		
1 chloride	2,6-dinitrotoluene		
	di-n-octyl phthalate		
	1,2-diphenylhydrazine (as azobenzene)		
	Fluorine		
	Fluoranthene		
	hexachlorobenzene		
	hexachlorobutadiene		
	hexachlorocyclopentadiene		
	hexachloroethane		
	indeno(1,2,3-cd)pyrene		
	Isophorone		
	Naphthalene		
	Nitrobenzene		
	N-nitrosodimethylamine		
	N-nitrosodi-n-propylamine		
	N-nitrosodiphenylamine		
	Phenanthrene		
	Pyrene		
	1,2,4-trichlorobenzene		

OTHER TOXIC POLLUTANTS
(METALS AND CYANIDE) AND TOTAL PHENOLS

Antimony, Total
Arsenic, Total
Beryllium, Total
Cadmium, Total
Chromium, Total
Copper, Total
Lead, Total
Mercury, Total
Nickel, Total
Selenium, Total
Total Recoverable Thallium, mg/l
Silver, Total
Thallium, Total
Zinc, Total
Cyanide, Total
Phenols, Total

TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES
REQUIRED TO BE IDENTIFIED BY EXISTING DISCHARGERS
IF EXPECTED TO BE PRESENT

Toxic Pollutants

Asbestos

Hazardous Substances

Acetaldehyde	Isoprene
Allyl alcohol	Isopropanolamine
Allyl chloride	Keithane
Amyl acetate	Kepone
Aniline	Malathion
Benzonitrile	Mercaptodimethur
Benzyl chloride	Methoxychlor
Butyl acetate	Methyl mercaptan
Butylamine	Methyl methacrylate
Captan	Methyl parathion
Carbaryl	Mexacarbate
Carbofuran	Monoethyl amine
Carbon disulfide	Monomethyl amine
Chlorpyrifos	Naled
Coumaphos	Napthenic acid
Cresol	Nitrotoluene
Crotonaldehyde	Parathion
Cyclohexane	Phenolsulfanate
2,4-D(2,4-Dichlorophenoxy acetic acid)	Phosgene
Diazinon	Propargite
Dicamba	Propylene oxide
Dichlobenil	Pyrethrins
Dichlone	Quinoline
2,2-Dichloropropionic acid	Resorcinol
Dichlorvos	Strontium
Diethyl amine	Strychnine
Dimethyl amine	Styrene
Dinitrobenzene	TDE (Tetrachlorodiphenylethane)
Diquat	2,4,5-T (2,4,5-Trichlorophenoxy acetic acid)
Disulfoton	2,4,5-TP [2-(2,4,5-Trichlorophenoxy) propanoic acid]
Diuron	Trichlorofan
Epichlorohydrin	Triethylamine
Ethanolamine	Trimethylamine
Ethion	Uranium
Ethylene diamine	Vanadium
Ethylene dibromide	Vinyl Acetate
Formaldehyde	Xylene
Furfural	Xylenol
Guthion	Zirconium

A TERMS AND CONDITIONS (continued)

5. Effluent Limitations

During the period beginning no later than the effective date of the permit and lasting through July 31, 2007, the permittee is authorized to discharge from outfall(s) serial number(s): 001A, following disinfection and prior to mixing with the receiving stream.

In accordance with the Water Quality Control Commission Regulations for Effluent Limitations, Section 62.4, and the Colorado Discharge Permit System Regulations, Section 61.8(2), the permitted discharge shall comply with the following limitations.

Parameter	Discharge Limitations	
	30-Day Avg.	Daily Max.
Flow, MGD	10.0	Report
BODs, mg/l	30	45 (7-day avg.)
Total Suspended Solids, mg/l	30	45 (7-day avg.)
Oil and Grease, mg/l	N/A	10
pH, s.u. (Minimum-Maximum)	N/A	6.5-9.0
Total Residual Chlorine, µg/l	Report	Report
Fecal Coliform, #/100 ml		
May 1 – October 15	221	442 (7-day avg.)
October 16 – April 30	2,254	4,508 (7-day avg.)
Total Ammonia (as N), mg/l		
January	7.8	10
February	7.6	9.8
March	6.4	8.2
April	6.7	16
May	7.0	16
June	6.2	15
July	7.0	20
August	6.7	16
September	7.8	19
October	7.2	16
November	7.3	10
December	7.4	11
Cyanide, Weak Acid Dissociable, µg/l	Report	5.5
Chromium, Hex, Dissolved, µg/l	12	17
Mercury, Total, µg/l	Report	Report
Copper, Potentially Dissolved, µg/l	Report	Report
Selenium, Potentially Dissolved, µg/l	Report	Report
Whole Effluent Toxicity, Chronic	NA	Statistical Difference

ENDED: OCTOBER 4, 2004

EFFECTIVE: DECEMBER 1, 2004

EXPIRES: JULY 31, 2007

Section 8 – Technical Support Appendices

Appendix 8.H

Planning and Zoning Information (e.g., Portion of Local Comprehensive Plan)

Section 4 - Land Use of the City's most recent Comprehensive Plan is enclosed.

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SECTION 4.0 LAND USE PLAN

City of Loveland 2007 Land Use Plan

- 4.1 Introduction***
- 4.2 Land Use Goals and Objectives***
- 4.3 Land Use Categories and Future Land Use Plan Map
(Discussion)***
- 4.4 Analysis of Major Corridors and Redevelopment
Opportunities***
- 4.5 Implementation***

Individual Sections

- 4.6 Airport and Surrounding Areas***
 - 4.7 Land Use Plan Map and Land Use Categories***
-

City of Loveland 2007 Land Use Plan

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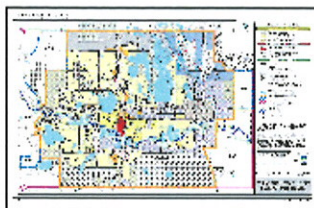
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* See Comprehensive Plan Section 4.7 for Land Use Map and Land Use Category Descriptions

4.1 INTRODUCTION

Components of the Plan

The primary components of the Land Use Plan (the Plan) for Loveland include:



Link to Future Land Use Plan Map series

Land Use Goals and Objectives (Section II): The Plan includes a consolidated set of goals and objectives addressing growth management, annexation, activity centers and commercial and industrial development, residential growth and neighborhood preservation, and community facilities. These goals, objectives and policies are consolidated from the 1994 Comprehensive Master Plan as amended through December 16, 2003, and from the General Plan update of September 6, 2005.

Future Land Use Plan Map and Land Use Categories (Section III):

The Land Use Plan includes a Future Land Use Plan Map and accompanying text. The Future Land Use Plan Map (the Map) is important because it provides a graphic framework or “roadmap” for future growth. The text that accompanies the map includes:

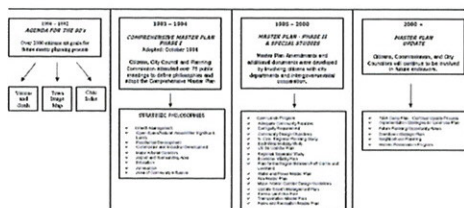
Descriptions, location criteria, and density ranges for land use categories;

Guidelines to assist in the interpretation and application of the Plan during development review; and

Information to further describe and support designations of land uses and trends likely to be encountered based on the 2005 General Plan update.

Implementation Schedule (Section IV): This schedule outlines specific steps and future planning programs, such updates to the zoning code and special sub-area studies. The schedule provides a brief description of the project scope, the primary entity responsible for accomplishing the project, partnership opportunities, a timeframe and an associated cost, where applicable.

The Land Use Plan works together with other elements of the Comprehensive Plan, such as the Community Design Element, and other plan documents that have been adopted separately as part of the Comprehensive Plan, some of which are listed below. Their relationship to this plan is described in greater detail later in this document:



2004 General Plan, adopted September 2005; Northern Colorado Community Separator Study; A Plan for the Region Between Fort Collins and Loveland; City of Loveland Open Lands Plan; 2030 Transportation Plan; and Parks and Recreation Master Plan.

Brief History of the Plan and 2005 Update

[Link to summary of major phases of the planning process since 1990.](#)

The 1994 Comprehensive Master Plan (Plan) was an outgrowth of the City's 1992 visioning project "Agenda for the 90s and Beyond." In 2000, an update of the Land Use Plan was prepared together with the functional plan for transportation (2020 Transportation Plan). This update emphasized the link between land use and transportation. The 2000 update resulted in a Future Land Use Plan Map as we have today. This map introduced the concepts of mixed-use activity centers and a variety of other land use categories together with Growth Management objectives and planning boundaries. A variety of subsequent revisions to the Plan and Land Use Plan Map have been adopted since that time, which have been primarily focused on changes to specific land use categories, map designations, and planning boundaries.

In 2004, a 10-year update to the City's Comprehensive Master Plan was initiated. This update resulted in a more comprehensive set of General Plan goals and objectives (Section 3 of the Plan) reflecting accomplishments of the past 10 years and the current state of the community. This Land Use Plan was subsequently updated to consolidate existing components of the Plan and provide updated information regarding related planning programs, such as the evaluation of a Transfer of Development Unit program, enclave annexations and activities related to downtown redevelopment. This update to the Land Use Plan also incorporates the direction and priorities established by the 2004 General Plan update.

2004 General Plan Update: In preparing the 2004 General Plan update, more than 35 representative groups from throughout the community met to develop a new set of goals and objectives based on a vision and guiding principals crafted from previous community planning efforts. Participants in this effort included one representative from each of the City's boards and commissions plus a representative from each of the other public and quasi-public agencies (such as health care providers, colleges and schools, non-profit groups, and economic development and business organizations) engaged in community based initiatives. Staff liaisons also participated in the planning process. Please refer to the Year 2030 Vision Document and the General Plan Organizational Framework for a more detailed description of the 2004 planning process.

Purpose and Intent of the Plan

As noted in Guiding Principle 9 of the General Plan, the purpose of the Land Use Plan is to guide the development of the community within the Loveland Growth Management Area in order to meet present and future needs, while protecting the health, safety, order, convenience, prosperity, energy and resource conservation, and the general welfare of

The purpose of the Land Use Plan is to guide the development of the community...to meet present and future needs, while protecting the health, safety, order, convenience, prosperity, energy and resource conservation, and the general welfare of the citizenry.

the citizenry.

The intent of the Land Use Plan is to achieve the coordinated and harmonious development of the city and its environs. Further, the Land Use Plan is intended to promote efficiency and economy in the process of development including, among other things, adequate provision for public facilities and services and balancing land use with the transportation system; the promotion of safety from fire, flood waters, and other dangers; adequate provision for light and air, distribution of population, affordable housing; the promotion of good civic design and arrangement; efficient expenditure of public funds; and the promotion of energy conservation.

As a guideline, the Land Use Plan is not a zoning document. Zoning is one of the many ways that the Land Use Plan is implemented.

4.2 LAND USE GOALS AND OBJECTIVES

The Land Use Plan is based upon the following goals and objectives as discussed by the City Council, Planning Commission, staff, and citizens. These goals and objectives were among the goals brought forth previously in the *Agenda for the 90's*, emphasized in the 1994 Comprehensive Master Plan. In particular, the following sections of the Plan reflect guiding principals, goals and objectives adopted as part of the *General Plan* Organizational Framework adopted by the City Council in 2004 after a comprehensive public review process. Other sections of the City's *General Plan*, including Goals 5.2 and 5.4 regarding Open Lands, Goal 16.1 regarding active living and pedestrian/bicycle connectivity, and Goals related to the Transportation Master Plan, should be applied to land use decisions.

Land Use Plan Goal: The goal of the Loveland Land Use Plan is to provide a general pattern for the location, distribution and character of the future land uses within Loveland's Growth Management Area. The objectives that further the above-described goal are:

- LU1:** Emphasize flexibility within the Land Use Plan while building on the existing land use pattern.
- LU2:** Place an equal importance on the quality and character of new residential neighborhoods in each quadrant of the city, while at the same time maintaining or upgrading of existing neighborhoods.
- LU3:** Include development of multi-use activity centers at the regional, community (Downtown), and neighborhood levels as a part of the Land Use Plan.

- LU4:** Concentrate existing commercial outlets in strips along the two major arterials, US 34 and US 287, and encourage revitalization by upgrading facilities, reducing traffic conflicts, and improving parking where needed.
- LU5:** Encourage the development of multi-use, high-quality employment districts where campus-type settings are appropriate, particularly along the transportation corridors of I-25, US 34, and south side of SH 402.
- LU6:** Provide sufficient lands for industry in the Fort Collins- Loveland Airport area and along the I-25 Corridor.

Growth Management

Loveland's future depends on City government's ability to manage growth and infrastructure in a manner that will allow a high quality of life for residents, provide financial stability for the City, and encourage a solid economic base for the community. As stated in Guiding Principle 12 in the General Plan, the City's intent is to encourage a pattern of compact and contiguous development that directs growth to where infrastructure capacity is available, or committed to be available in the future, and take into account the adopted plans of, and agreements with, adjacent local governments to the extent that they reflect extra-jurisdictional interests.

Growth Management Goal: The overarching growth management goal is to coordinate growth with the provision of community facilities and services within the Growth Management Area, and locate the city's growth within this boundary. Objectives that further this goal are:

- GM1:** Integrate the components of the Larimer County Master Plan, including build-out and utility provision time-frame criteria, as applicable, with the location, distribution, and characteristics of future land uses designated within the City's Growth Management Area.
- GM2:** Continually monitor, and revise as necessary, the Growth Management Plan to ensure that it is accomplishing the community's vision through managed growth while giving particular attention to the future community character, open space, financial, and natural resource aspects of the community.
- GM3:** Provide appropriate areas within the GMA with a full range of urban-level services within a 20-year time-frame by meeting the goals and objectives of Loveland's Growth Management Plan and associated Comprehensive Master Plan philosophies (policies) and principles.

- GM4:** Maintain an intergovernmental agreement with Larimer County that addresses the principles of Loveland's 1994 Comprehensive Master Plan, Larimer County Master Plan, and the growth management concerns of each jurisdiction.
- GM5:** Engage in joint strategic planning efforts, as appropriate, in identified Cooperative Planning Areas (CPA) with residents, landowners, adjoining municipalities, and Larimer County.
- GM6:** Coordinate the review of development applications within the Community Influence Areas (CIA) by maintaining a process where such applications are referred to the adjacent jurisdiction(s).
- GM7:** Proactively annex all eligible areas, including enclaves, within the Loveland Growth Management Area.
- GM8:** Develop, and have Larimer County adopt, supplementary regulations for the Loveland Growth Management Area, in order for the County to implement the Larimer County/City of Loveland Intergovernmental Agreement.
- GM9:** Support Larimer County Government in its effort to apply a Growth Management Area (GMA) Overlay Zoning District and supplementary regulations to the Loveland GMA.

Regional Coordination

The City of Loveland acknowledges that regional cooperation is imperative to the continuation of regional planning efforts.

Regional Cooperation Goal: Loveland will work with adjoining governmental entities including, but not limited to Fort Collins, Windsor, Greeley, Johnstown, Milliken, Berthoud, and Larimer and Weld counties to develop intergovernmental agreements that will address growth boundaries. Loveland will work with other governmental entities to discuss, coordinate, and agree on regional boundaries and other social and planning issues along with revising, developing, and implementing intergovernmental agreements as necessary. In addition, the City will continue to implement the Intergovernmental Agreement on Growth Management with Larimer County. The objectives that further this goal are:

- IGA1:** Preserve the unique identities of communities in the Northern Colorado region by establishing and maintaining buffers (separators) between Loveland and neighboring communities.
- IGA2:** Maintain and enhance areas of urban development in a thoughtful and deliberate way through cooperation in land use and transportation

planning, implementation of growth management policies, and the identification and preservation of open lands and natural areas.

- IGA3:** Concentrate urban development in areas designated for such development.

Annexation, Growth Management and Land Uses

The following sections address specific policies and objectives related to annexation, and developing land uses within the City. These statements reflect the community's policies and objectives to guide the future development and redevelopment of the City. These statements should be considered together with the Future Land Use Plan Map and Land Use Category descriptions when evaluating a specific annexation, development or redevelopment proposal.

Annexation

- ANX1:** The capacity of community services and facilities to accommodate development should be considered when annexing new lands into the City.
- 1.A The annexation of land should minimize the length of vehicle trips generated by development of the land.
 - 1.B The annexation of land should minimize the short and long term costs of providing community services and facilities for the benefit of the annexed area.
 - 1.C The annexation of land should encourage infill development and generally ensure that land is immediately contiguous to other land in the City that is already receiving City services. Leapfrog and scattered site development are to be discouraged.
 - 1.D The recommendations of the Thompson R2-J School Board or their staff should be considered when evaluating an annexation proposal.
 - 1.E Additional extension of City utilities should not be made outside the City limits without formal approval by the City Council.
 - 1.F When annexation is accompanied by a specific development proposal, and when it is determined necessary by the City, the annexation of land should be allowed only if the City has accepted a cost/benefit study detailing the economic impacts of the proposed development based upon a fiscal model acceptable to the City.
 - 1.G Proposed annexations, when accompanied by a specific development proposal, should include an analysis of the impact on the educational system.
- ANX2:** A compact pattern of urban development should be encouraged when considering the annexation of new lands into the City.

- 2.B The City should work with Larimer County to discuss ways to encourage a compact pattern of urban development.
- 2.B The City should encourage the annexation of county enclaves within City limits and discourage the creation of future enclaves.

- ANX3:** Appropriate consideration should be given to the need for open space and natural areas within the city limits.
- 1.A The recommendations contained in the adopted Open Lands Plan should be considered when evaluating an annexation proposal.
 - 1.B Annexation should be allowed for the purpose of preserving or acquiring open space or natural areas.

- ANX4:** Environmental impacts of development should be identified and considered when considering an annexation proposal.
- 4.A If the planning staff and/or city determines that significant negative impact of a proposed annexation or development on the environment may occur, based upon objective standards, an Environmental Impact Report should be prepared by a qualified specialist. *Note: This requirement is applicable for the development or redevelopment of property already within the City as well.*
 - 4.B The annexation of land should be allowed only if the owner can provide assurances that the land does not contain hazardous or toxic substances that may pose a danger to the city or that reasonable mitigation measures can be taken in the event that such contamination exists. To make this determination, a Phase I Environmental Report should be prepared by a qualified specialist. *Note: This requirement is applicable for the development or redevelopment of property already within the City as well.*
 - 4.C The annexation of land should be allowed only if the owner has had a Wetlands Reconnaissance Report prepared by a qualified specialist. *Note: This requirement is applicable for the development or redevelopment of property already within the City as well.*
 - 4.D All development agreements should deal satisfactorily with any environmental impacts upon the property. *Note: This requirement is applicable for the development or redevelopment of property already within the City as well.*

- ANX5:** The City's annexation objectives, policies, and regulations should promote quality developments.
- 5.A Any annexation should be contingent upon a development agreement that clearly details the rights and obligations of the City and the land owner regarding the annexation and development of the annexed land.
 - 5.B As land is proposed for annexation the City encourages the developer to consider assembling available adjoining land

parcels and prepare a master plan design for the larger area, rather than submit separate individual proposals.

ANX6: Guidelines for Contiguous* Development

- A. Leapfrog, scattered-site and flagpole development is discouraged;
- B. Development of land should encourage infill development;
- C. Development of land should be contiguous to other land that is already receiving public services.

**Contiguous refers to Loveland's policy for development, not the contiguity requirement in state municipal annexation act of 1965*

- ANX7:** Functional plans for extension of utilities should provide for a phased program of extension of utilities in accordance with the requirement for contiguous development, subject to the need to maintain the City utilities' ability to service their customers adequately and efficiently.

Residential Land Use

Loveland is known for the high quality of life enjoyed by residents. An important element of that quality of life is the residential neighborhoods of the city. These range from older neighborhoods to new suburban subdivisions. Each provides a character, ambiance, and price range from which residents can choose.

The older neighborhoods are located around the Downtown area. These tree-lined neighborhoods contain a mix of home types and offer some of the more affordable housing in the city, although the 2004 Housing Study found many of these homes require some repair. Additionally, some neighborhoods are beginning to gentrify. Within these neighborhoods, the City should encourage infill housing when in accord with the character and density of the neighborhood. The City has taken steps to preserve and protect the historical character of older neighborhoods through continued application of the historic preservation program. Public policies should encourage a high level of property maintenance and, in some instances, should upgrade public infrastructures such as streets, curb and gutter, and sidewalks.

New residential neighborhoods are planned for each of the quadrants of the city. These neighborhoods are planned as low-density neighborhoods, with a mix of housing types which appeal to a range of residents. Each neighborhood should be designed to be environmentally sensitive, to preserve important natural resources, and to provide high-quality design in the neighborhood and its housing. Where possible, these neighborhoods should provide facilities and a land use pattern which will allow residents to walk or bicycle to obtain goods and services, thus reducing the impact on the street system.

Medium- and high-density housing in the form of apartments, condominiums, townhouses, and other types of attached residences are encouraged to locate in close proximity to services, along arterial streets, or as a part of activity centers. Where possible, locating residences adjacent to major parks, greenbelts, private open space, or recreation areas is desirable. Medium- and high-density residential uses, properly designed, can also serve as a transitional use between commercial uses and low-density residential areas. In creating transitions between commercial and residential areas, connectivity for pedestrians and cyclists is an important consideration.

Areas of Estate Residential are provided on the edges of the future city. Many of these areas are currently in Larimer County and are developed at rural densities. The location of lower urban densities at the edges of the City in this manner provides for a more compatible land use transition into adjacent rural County development and significant natural features at the edges of the City, such as the first ridge or "hogback."

Objectives for residential land uses are provided below. Descriptions of residential land use categories are provided in Section III of this Plan.

- RES1:** Orderly development which is phased and coordinated with the community's fiscal and service capacity is encouraged.
- 1.A A consistent & balanced relationship between the Land Use pattern & capacity of streets, utilities, and community services should be met so that those systems are not overburdened.
 - 1.B Urban development proposals should be contiguous to existing development within the city limits.
- RES2:** Development should only be permitted where provision of facilities and services (i.e., police, fire, water, sewer, parks, schools, roads, communications systems, etc.) will be made available in a timely manner.
- RES3:** The development of a full range of housing types to meet the needs of all age and socio-economic groups is encouraged.
- RES4:** A mix of housing densities throughout the City is encouraged.
- RES5:** Quality design and compatible land use relationships with all proposed and existing developments is encouraged.
- RES6:** Residential development in areas which have been officially designated as floodplain areas is discouraged.
- RES7:** Pedestrian and bicycle friendly development is encouraged by considering among other things:
- 7A. Walking or biking distance to an existing or planned neighborhood park and within easy access to a community park;
 - 7B. Easy access to major employment centers;

- 7C. Walking or biking distance and safe accessibility to an existing or planned elementary school;
- 7D. Easy access to existing or planned neighborhood shopping centers.

RES8: Energy-conscious land use and site planning practices are encouraged.

RES9: Applicable elements of the Open Lands Plan and Parks and Recreation Master Plan should be considered when evaluating ~~in~~ residential development proposals.

9A. High value habitat that allows wildlife movement should be protected.

9B. Mitigation measures, such as buffer standards, may need to be taken in such areas as the Big Thompson River Corridor, designated wetlands, and identified natural areas to offset or accommodate the impacts of development.

RES10: Residential development proposals are encouraged where appropriate to incorporate the “clustering” of units to promote open space.

RES11: Motor vehicle access to low density lots should be from local streets (not collectors).

RES12: The developer of a residential project should consider assembling available land parcels and prepare a master plan design for the larger area, rather than submit separate individual proposals.

RES13: Private property rights should be considered when evaluating ~~in~~ residential development proposals.

RES14: Businesses and home occupations should be allowed in residential areas that are unobtrusive and compatible with residential uses.

Commercial Land Use

CLU1: The size and location of commercial development should be in keeping with the road capacities and land use context in which commercial centers develop. Commercial development should locate near transportation facilities that offer the required access to a commercial center and should not exceed the desired capacity of the existing and future transportation network of the City (level of service C).

CLU2: Local and community-scale commercial areas should conform to the guiding principles, goals and objectives contained in the General Plan Organizational Framework and the applicable policies and strategies contained within the various adopted plan elements.

2A. Commercial developments including intensity of activities should be in scale with the neighborhood context;

2B. Architectural and site planning guidelines should be prepared that encourage developments to blend with the surrounding context; to disperse parking into small, heavily landscaped lots, preferably located to not dominate the public image of the site along the main roads leading to it; to design pedestrian connections between residential and commercial centers that are safe and convenient (to discourage unnecessary auto trips) and integral to an attractive public

environment, not merely designed as pathways past the service areas or parking lots.

- CLU3:** Comprehensive criteria for three commercial activity center land use classification systems should be prepared, and updated as necessary, which will constitute the recommended general guidelines for development. The applicable criteria should include, but not be limited to: recommended height of buildings; open space ratios; floor area of establishments; etc.:
- Regional Commercial
 - Community Commercial
 - Neighborhood Commercial
- CLU4:** Strip commercial development is discouraged in order to prevent traffic congestion and encroachment into residential neighborhoods.
- CLU5:** New regional/community shopping centers locating within the proximity of existing regional/community shopping centers are encouraged to be designed to function together as a single commercial district. Pedestrian circulation is encouraged, and multi-stop trips with private automobiles are discouraged.
- CLU6:** Regional/community shopping centers should locate where they can be served by existing water and sewer facilities.
- CLU7:** Transitional land areas (linear greenbelts or other urban design elements) are encouraged to be provided between residential neighborhoods and commercial areas.
- CLU8:** Applicable elements of the U.S. 34 Corridor Plan (EDAW Entryway Plan) should be considered when evaluating commercial development proposals that lie within the area of the U.S. 34 Corridor study.

Downtown Loveland

- DTLUI:** The City recognizes that Downtown Loveland is a unique and historic commercial area. Development within downtown should be sensitive to the historic character of the area and reflect the guiding principles, goals, and objectives established for the Downtown contained in the General Plan Organizational Framework. To that end, the City encourages development in the Downtown that:
- 1A. creates reasons for people to frequent the Downtown through activities such as entertainment, recreational activities and special events;
 - 1B. encourages the preservation of historic buildings and enhances the historic flavor of the Downtown;
 - 1C. strengthens and diversifies the retail, economic and employment base in the Downtown;
 - 1D. encourages the development of art, cultural and educational opportunities;
 - 1E. ensures that downtown livability is enhanced;

- 1F. provides continued support for infrastructure and parking improvements; and
- 1G. encourages downtown locations for development of regional meeting and events facilities.

Office Land Use

- OLU1:*** Office developments are encouraged to locate according to their intensity, service area and employment characteristics. Design criteria should be developed which identifies location, acres, sq. ft., height limitations, open space, appropriate uses, etc.
- OLU2:*** Applicable elements of the U.S. 34 Corridor Plan should be considered when evaluating office development proposals that lie within the area of the U.S. 34 Corridor Plan.

Industrial Land Use

- ILU1:*** Industrial uses are encouraged to locate near transportation facilities that offer the required access to the industry and will not create demands which exceed the desired capacity of the existing and future transportation network of the City (service level C).
- ILU2:*** Industrial development should locate within the City where the proper sizing of facilities such as water, sewer, electric, communication and transportation has occurred or can be properly planned and implemented.
- ILU3:*** Applicable elements of the U.S. 34 Corridor Plan should be considered when evaluating industrial development proposals that lie within the area of the U.S. 34 Corridor Plan.

Major Arterial Corridors

The Land Use Plan identifies U.S. 34, SH 402, and US 287 as significant arterial corridors. The City's major corridors, because of their visibility and role as a focus of commerce, have a significant impact on the image, appearance and future economic vitality of the City.

- CORLU1:*** The eastern U.S. 34 corridor should provide an inviting and aesthetically pleasing entryway into Loveland.
 - 1.A Developments should be sensitively placed in relation to other uses and exhibit a high quality of design, signage and landscaping. All development should comply with the U.S. 34 Corridor Plan, as adopted. (The area covered by this Plan includes land between the vicinity of Denver and Boise Avenue to 1/2 mile E. of I-25, and extends approximately 1/2 mile north and south of the highway.)

- 1.B Development setbacks along U.S. 34 should present an image of a campus setting with low density allowed uses.
- 1.C Open space is encouraged to be retained through the clustering of development and/or other innovative means.
- 1.D As the major entryway to the City of Loveland, special care should be used to convey the high quality image desired by the City. Development regulations should be prepared and adopted for the U.S. 34 corridor that include, but are not limited to, such elements as public signage, private advertising signage, landscaping, roadway and intersection improvements, building height, exterior storage, building design and siting, and other similar design attributes.

CORLU2:

It is desired that other major corridors (western section of U.S. 34, U.S. 287, and State Hwy 402) develop and redevelop in a manner that promotes a positive and attractive image and that advances the economic prosperity of the City. Future corridor development/redevelopment and planning measures should include:

- 2.A Entry features that convey a distinctive and positive image;
- 2.B Beautification of the streetscape with landscaping, public art and other pedestrian enhancements such as pocket parks and plazas;
- 2.C Design standards that are tailored to the existing conditions and character of each corridor (e.g. new growth vs. established strip development);
- 2.D Incentives to encourage redevelopment and upgrading of existing corridor development, such as relaxing development controls where appropriate and where such standards serve as an impediment to redevelopment and upgrading existing conditions; and use of special districts and economic incentives where appropriate.

4.3 LAND USE CATEGORIES & FUTURE LAND USE PLAN MAP

This section provides descriptions of the various land use categories depicted on the Future Land Use Plan Map. Descriptions of mixed-use activity centers are provided below and supplemented by Table LU-1. Descriptions of residential categories are provided in Table LU-2. Descriptions of other non-residential categories, such as “Industrial” and Airport, are provided in Table LU-3.

Activity Center Land Use Categories

The Land Use Plan advances the concept of mixed-use activity centers, rather than single-purpose shopping centers. Activity centers are, in a sense, villages that include a mix of uses designed to provide shopping, services, public uses, and residences. These activity centers also serve as centers for the surrounding residential neighborhoods. While each of the activity centers is shown as a relatively large area on the Future Land Use Plan Map, that does not mean that the entire area will be commercial; rather, it will include only a reasonably sized commercial area, with other uses filling-out the village. Three types of activity centers are included:

- **Downtown Activity Center:** The Downtown area continues its traditional role as the city center. Downtown Loveland has roots as the civic, cultural, and commercial center of the city dating back to the turn of the 20th century. The importance of maintaining the Downtown as a viable activity center in the city is apparent in its unique qualities of walk-ability, architectural style, historical ambiance, and mix of land uses. Many of the positive qualities of the Historic Business District are being strived for in new development efforts in the city.

The Historic Business District has matured into an activity center that represents both the past and future of the City of Loveland, and thus serves as a destination for visitors from local and international origins. Its century-long vitality demonstrates the workability, resilience, and logic of a true activity center. The City should encourage policies and incentives to preserve the historic nature of downtown Loveland.

Several recent developments have, and will continue to influence development of the downtown are described below:

- **URA Creation:** In July 2002, the City established an Urban Renewal Authority and Downtown URA. The URA can provide access to Tax Increment Financing, important redevelopment incentive. A mixed-use project has been

approved on the site of the former Walgreens block utilizing TIF financing and several other historic renovation projects are underway and planned in the downtown area.

- **Historic Preservation:** In 2003 a Historic Preservation Commission was created to provide access to state and federal tax credits and state preservation grants. Numerous properties have since been designated and many have undergone renovation, taking advantage of these important incentives.
- **Downtown Zoning Update:** In 2003, the Be-Established Business District, which applies to the downtown area, was updated to include design standards intended to preserve the character of the downtown and encourage redevelopment.

- **Community Activity Centers¹**

The Land Use Plan provides for five Community Activity Centers at key locations in the future city. One existing community activity center is located at US 287 and 29th Street. It is classified as an activity center only for its commercial function, as it serves much of the north area of Loveland. This existing “older” activity center was not designed as a unit with the mix of uses desired in a true activity center. Future Community Activity Centers are planned for US 287 and SH 402, SW 14th Street and Taft, Wilson and 43rd Street, and US 34 and County Road 9.

- **Regional Activity Center**

The Centerra development (Millennium GDP) is the core for this regional center. Located at the junction of I-25 and US 34, this area has matured into a true mixed-use area with regional shopping, offices, and a wide variety of residential development. Poudre Valley Hospital is currently constructing a regional hospital facility within this area and the Shoppes at Centerra, a 900,000 square foot regional lifestyle shopping center, opened in 2005.

Employment Land Use Category

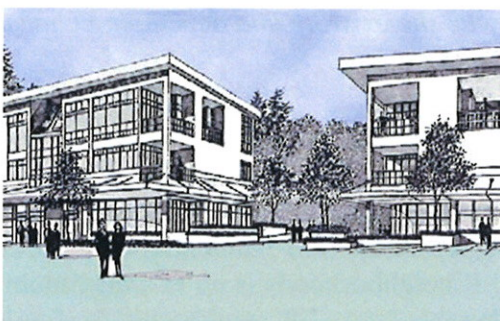
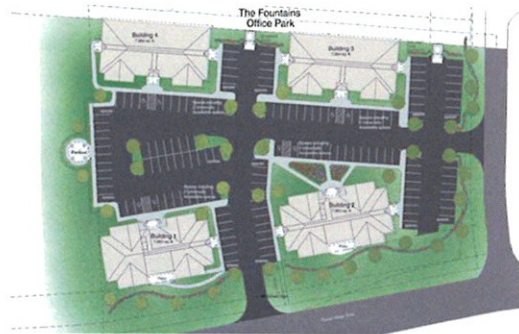
The Employment category provides land for a range of high-quality, well-designed uses where campus-type (see note) settings are encouraged. Uses should be a mix of office and light-industrial, together with lodging, retail, restaurants, and other non-residential

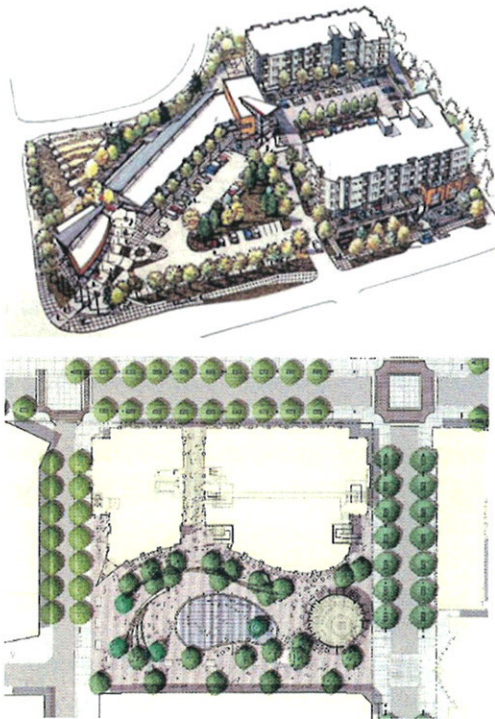
¹ According to the 2000 Land Use Plan, these activity centers were referred to as “Neighborhood Activity Centers.” As part of the 2006 Land Use Plan update, the “neighborhood” moniker was changed to “community” to more appropriately reflect the scale and function of these centers and the fact that they typically include a “community” shopping center. “Neighborhood” centers are placed lower in the revised hierarchy and are typically small commercial centers that serve a smaller neighborhood area.

complementary uses in a planned development. A proposed development plan that does not contain office or light-industrial uses may be deemed to be consistent with the Employment Center category if, in the vicinity of the proposed development plan, a) such office or light-industrial uses exist or the appropriate zoning for such uses is in place; and b) such existing or appropriately zoned office or light-industrial uses constitute the predominant land uses.

The Employment Land Use Category allows for residential development with an emphasis on vertical mixed-use developments. Generally, residential development is limited to 20 percent of the land area of any development. However, residential mixed-use development is not limited in area. Residential mixed-use includes office or commercial uses in the same building as residences, and should be designed to create a pedestrian-friendly environment.

Most of these uses will be located along major transportation corridors such as I-25, US 34, and SH 402. There will be circumstances, such as Woodward Governor, where it is appropriate to locate high-quality employment uses adjacent to residential areas. Each case should be evaluated on its own merits.





***Note:** “Campus-type” means a form of development that emphasizes open space and the preservation of natural features that may serve as buffers and transitions to adjacent area(s). Retail should be a “secondary” use to office and light industrial uses. The visibility of parking areas, whether structured or otherwise, should be minimized. The exterior elevation design of all buildings should be coordinated with regard to color, materials, architectural form and detailing to achieve design harmony, continuity and horizontal and vertical relief and interest. Shared vehicular and pedestrian access, shared parking, common open space and related amenities should be integrated into the project’s design. The overall design of a campus-type development should be compatible with the existing and developing character of the neighboring area.*

Estate Residential Land Use Category

Areas designated ER are intended to provide for lower residential densities and larger lot areas than other residential land use categories. The gross density for ER neighborhoods is up to a maximum of two (2) units per acre on developable land. ER neighborhoods should consist of single family detached homes. Generous building setbacks and lot frontages result in significant space between dwellings to create an estate residential appearance within the developed area and to preserve view corridors.—Significant environmentally sensitive areas are preserved as permanent open space.

Specific requirements for average and minimum lot sizes, building setbacks and determining buildable areas should be adopted as part of an ER Zoning district in Title 18. These requirements should allow a limited degree of flexibility in lot sizes, but also ensure that the gross density on the buildable area does not exceed 2 dwelling units per acre.

Medium Density Residential Land Use Category

The desired character of MDR districts is a mix of attached or small-lot homes including townhomes/rowhouses, small-lot detached homes, fourplexes and eight-plexes. Some apartments or condominiums may be included. This category is intended to diversify the available housing in Loveland. A more diverse housing stock can provide entry-level homeownership opportunities, and can meet the needs of residents seeking smaller or lower-maintenance homes.

Much of the existing MDR area has already been built out. A greater proportion of the population will be composed of “empty nesters,” single-parent families, and households without children, while housing and land prices continue to rise. It is therefore expected that demand for medium-density housing will increase. The potential for adding new MDR areas to meet market demand should be evaluated.

The R2 and R3e zoning districts should also be evaluated in order to better implement the desired character of MDR areas and to facilitate the desired housing types. Medium-density housing should be well-designed in order to maintain value over time, create attractive neighborhoods, and be compatible with neighboring development.



Left: Traditional pre-war neighborhood

Right: Cottage housing development



Left: Duplexes with private yards

Right: Duplexes with shared open space





Left and Right:
Contemporary townhome
developments



Left: Brownstone-type
townhomes

Growth Boundaries, Land Use/Transportation Link, and Enclaves

The following sections address important considerations included in the formulation of the Future Land Use Plan Map and that have influenced the location and distribution of future land uses. These include growth management boundaries; the link between the transportation and land use plans; and county enclaves.

Growth Boundary Areas

County IGA: In August 2003, the City and Larimer County finalized a new IGA. The City agrees to annex all properties in the GMA as soon as they are eligible for annexation. Also, any discretionary development proposal presented to the County within the GMA is first referred to the City to determine eligibility for

In addition to other measures, the City manages growth through the adoption of three (3) growth boundaries (Figure 1). These boundaries are reflected on the Future Land Use Plan Map. The most important boundary, the Growth Management Area (GMA), establishes the extent of the City's planned future municipal boundaries. This boundary extends beyond the current City Limits to the area that the City intends to annex in the future. Only areas inside of the GMA are eligible for annexation into the City (provided state statute requirements are also met). Other boundaries establish areas for plan referral and areas for cooperative planning with other jurisdictions. These growth boundaries are also included in the City's intergovernmental agreements. Commentary at the end of this section explains the current status of the City's intergovernmental agreement with Larimer County relative to the GMA. Specific details about each area are described below:

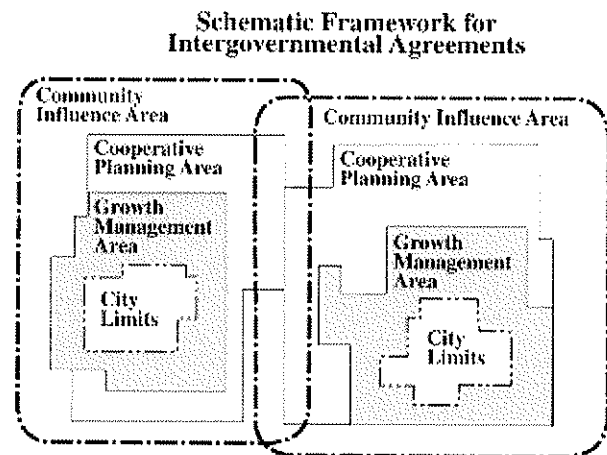


Figure 1 – Growth Management Boundaries
This boundary extends beyond the current City Limits to the area that the City intends to annex in the future. Only areas inside of the GMA are eligible for annexation into the City (provided state statute requirements are also met). Other boundaries establish areas for plan referral and areas for cooperative planning with other jurisdictions. These growth boundaries are also included in the City's intergovernmental agreements. Commentary at the end of this section explains the current status of the City's intergovernmental agreement with Larimer County relative to the GMA. Specific details about each area are described below:

Growth Management Area (GMA):

- The GMA is the area that Loveland intends to provide with urban-level services. The timeframe in which those services would be provided depends upon meeting the City's planning goals and objectives as reflected in the various planning documents that make-up the Comprehensive Master Plan.
- Land uses within the GMA are indicated on the Future Land Use Plan Map in the same manner as areas within the City's current municipal boundaries.
- Loveland's GMA includes land that generally will be developed within a 20-year timeframe. Some land in this area may exceed 20 years before build-out.

- Whenever possible, Loveland utilities should provide the services needed in this area. If this is not possible, other service providers may be acceptable.

Cooperative Planning Area (CPA)

- The area is a strategic planning area for the residents, landowners, municipality, and county.
- These areas could eventually be annexed and provided urban services beyond a 20-year planning area.
- May also include areas that, because of existing development patterns or other factors, are not planned for as urban development.
- Municipalities could jointly identify their CPAs so they do not overlap and are able to avoid future “annexation wars.”

Community Influence Area (CIA)

- These planning areas may overlap CIAs of other municipalities.
- Development applications within these areas will be referred to the adjacent jurisdiction(s) for close coordination during the development review process.

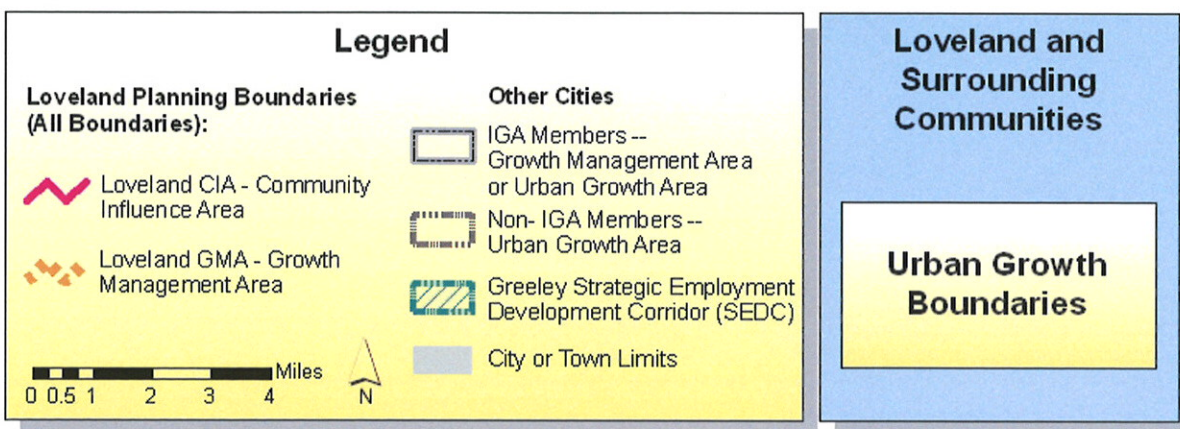
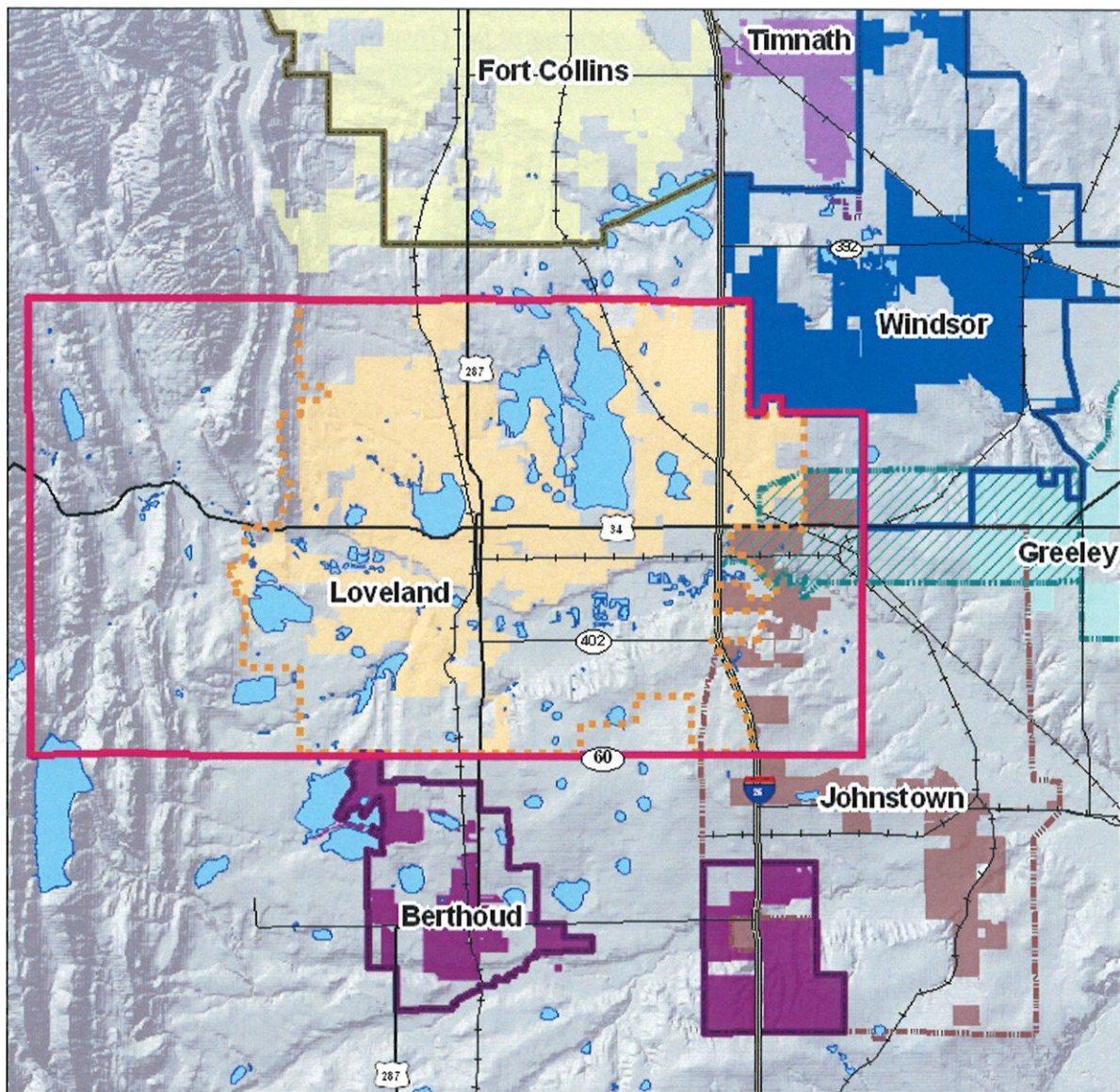
Update Regarding the Southeastern Portion of the Loveland GMA:

In August 2003, the City and Larimer County finalized an updated Intergovernmental Agreement. According to the new IGA, the City agrees to annex all properties in the GMA as soon as they are eligible for annexation. Also, any discretionary development proposal presented to the County within the GMA is first referred to the City to determine eligibility for annexation. For communities that have an adopted IGA, Larimer County has adopted a GMA Overlay zoning district that formalizes recognition of GMA boundaries and gives deference to annexation and local Comprehensive Plans within these areas County-wide .

An amendment to the 1994 Comprehensive Master Plan dated December 16, 2003 removed the south half of Section 32, T5N, R68W, and all of Section 33, T5N, R68W from the GMA as shown on the Land Use Plan and Growth Boundaries Maps. This area is removed from the GMA as a means to reach agreement with Larimer County on an Intergovernmental Agreement (IGA), consistent with objective GM: 2. Larimer County will not consider this area to be part of the City’s GMA for the purposes of the annexation policies and application of supplementary regulations as set forth in the IGA. However, the City may still annex land in this area when determined to be appropriate and consistent with other goals and objectives of the Plan and City Codes.

Land use designations are still indicated in this area on the Future Land Use Plan Map. Therefore, the southeast corner of the City’s GMA is currently not included within the County GMA Overlay district.

Recognition of the City's current GMA boundary will necessitate amendment of the County GMA Overlay zoning district. [Link to Intergovernmental Agreement for Growth Management with Larimer County and Exhibit 1 Growth Management Area.](#)



The Land Use-Transportation Relationship

The Land Use Plan and the Transportation Plan have been developed together in a coordinated planning process.

The Land Use Plan and the Transportation Plan have been developed together in a coordinated planning process. Today's planning methods recognize the fundamental relationship between land use and traffic. Traffic forecasts are based on land use, and are generated through sophisticated computer modeling. Individual computer simulations are referred to as "model runs." These are tests of various land use scenarios, vehicle trips they generate, and existing and future roadway systems.

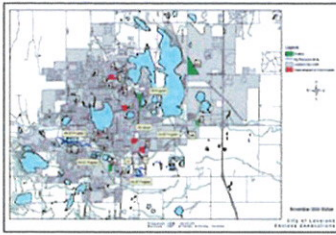
The foundation of this modeling is the estimation of traffic generation for each land use type on the Land Use Plan. Traffic volumes can then be forecast for the future. During the analysis of alternative systems, traffic volumes can be modified by changing the land use pattern. Similarly, the transportation system can be modified to increase capacity. This allows the City to deal with areas of congestion and areas of under-utilization. This balancing act continues until a balanced plan for land use and transportation is finalized.

As a part of the land use/transportation planning process, approximately 30 model runs were made to test the impact of various land use scenarios and address a full range of transportation planning questions. These scenarios included testing of a dense, compact city compared to lower density suburban development; the effectiveness of a bypass system; the effect of scattered high employment development, as compared to concentrated employment centers; and many other scenarios.

The result of these studies was the determination by City Council and Planning Commission that Land Use "Scenario C" be the foundation for the Land Use Plan contained in this document. This scenario includes a continuation of suburban development with densities similar to existing Loveland neighborhoods, and a future development pattern that would allow activity centers to serve major areas of the city. Thus the Land Use Plan and the Transportation Plan are inherently linked.

Given the close interrelationship between land use and transportation, it is extremely important to understand that any major deviation from the Land Use Plan impacts the Transportation Plan as well. For example, assuming 10 trips per day per residence, if the Land Use Plan shows an area to be developed at an average density of 4 residential units per acre, each acre would then generate approximately 40 vehicular trips. If that same area was developed at 16 units per acre, 160 trips per acre would be generated. On a development of 80 acres, development at 4 units per acre would generate 3,200 trips. Development at 16 units per acre would result in 12,800 trips, or an additional 9,600 vehicle trips added to the transportation system that were not planned for. That impact should be carefully noted when considering any development application not in substantial conformity with the Land Use Plan.

County Enclaves



[Link to Status Map of Enclave Annexations](#)

The Loveland Land Use Plan recognizes that county enclaves exist within the city limits. Land use categories have been designated for each enclave based upon recognizing existing surrounding land use, traffic capacity of the surrounding street system and projections of future development and redevelopment opportunities. The City desires to encourage annexation of enclaves and will consider various incentives, such as increased densities, waiver of fees, Adequate Community Facilities exemptions for a proposed development within an existing enclave provided that the incentives will not negatively impact the infrastructure system or existing neighborhood communities.

The City Council adopted a [resolution](#) establishing policies for enclave annexations during a March 26, 2002 study session. These policies have been incorporated into a [standard enclave annexation agreement](#). The agreement and annexation policies address the potential zoning of an enclave upon annexation and terms for recognition of legal nonconforming uses. As of October 2006, approximately 2/3rds of all priority enclaves have been annexed into the City.

Transition Guidelines and Interpretation

Land Use Transition Guidelines

The *Community Design Elements for Neighborhood Development and Redevelopment*, a 1994 Comprehensive Master Plan element, provides broad guidelines for ensuring the development of high-quality residential neighborhoods including such elements as location, pedestrian facilities, streetscape, open space, and similar elements.

Of equal importance to the City is the protection of existing and future development through use of transition guidelines. Areas where the guidelines should be applied are:

- Where new development is to be located adjacent to existing development of the same general land use type. For example, a new residential subdivision located adjacent to existing residential development.
- Where new development is to be located adjacent to existing less dense development of the same land use type. For example, a proposed multi-family development adjacent to an existing low-density residential development.
- Where one land use type is located adjacent to a different land use type. For example, a commercial development adjacent to a residential development.

The techniques available to protect adjacent properties are many. The most important element is the recognition by all involved in the development

review process that the protection of an individual property from adverse impacts of a new adjacent development is a high priority for the City. The developers should hold neighborhood meetings with area residents prior to submission of development proposals. This process provides for communication between the developer and neighbors, and allows ideas to be explored.

Transitions between land use types can be accomplished by utilizing a natural or manmade element as the break between land use types. Elements which can serve as excellent breaks between land use types include stream corridors, canals, and open space corridors. Railroads and arterial streets may also serve as breaks. Many of these elements were used as boundaries between land use categories in the Land Use Plan.

However, it is not always possible to have the transition between two land use types occur along these major features. The question then becomes how to make the transition a sharp transition that also protects the landowners of one land use type from the impacts of another. There are several means of accomplishing this that could be utilized as guidelines in the development review process or formalized in the City's ordinances:

- **Bufferyards:** The bufferyard is a strip of land that is required along boundary lines of adjacent and different intensity land use types. Depending on the land use types involved, the bufferyard may need to be quite wide or relatively narrow.
- **Transition Areas:** This area might be a band of land where the more intensive land use type provides a reduced intensity and increased open space at the border. This is a technique where the land use is altered at the transition. This type of obligation could be required of both types at their common border. A variation on the transition area would be to require larger lots on both sides of a boundary. It is critical that this increase in lot size manifest itself in the form of deeper lots and a greater rear-yard setback, thus buffering both. As conditions permit, connectivity through transition areas should be promoted.
- **Boundary Delineation:** Where less dense development exists, it is best to extend the pattern of existing, less dense development slightly into the adjoining property so that the new development can plan for the transition. In the event of a more dense existing development, this would not apply.

Guidelines for Interpretation

The Loveland Land Use Plan has been developed to provide the community with "flexible" opportunities (Objective LU1). The Land Use Plan is general in nature and is intended to only provide guidance in the type, density, intensity and arrangement of land uses. The Land Use Plan is supplemented with City policies, codes, guidelines, and standards that further define the type and arrangement of development desired by the City.

The Land Use Plan includes elements of flexibility to provide those using the plan with general direction which can be refined and made a reality in the development review process.

A flexible plan brings with it many opportunities for elected and appointed officials and staff, as they review applications and guide the development community in achieving the type and quality of development desired by the community. It allows the City to encourage design creativity, to provide for contemporary, mixed-use development, and to better deal with market shifts.

Interpretation Guidelines: This subsection provides guidelines to use in the application of the Plan during the review of development proposals. During annexations and review of zonings and rezonings, including Planned Development proposals, a finding of consistency with the Plan must be made. The following guidelines are intended to assist staff, decision makers and developers in applying the various Plan objectives, land use categories and designations on the Future Land Use Plan Map to evaluate specific development proposals.

Plan vs. Code: The Land Use Plan is a general guideline that should not be interpreted in a strict or narrow manner as the City's Zoning Code. The Plan does not entitle land owners or developers to a specific right of use, density or intensity of use that would typically accompany zoning. Plan objectives are intended as desired outcomes that must be balanced with individual property rights, other codes, policies and ordinances, and site specific considerations. The Plan has been formulated to be a flexible document that can be adapted to meet this diversity of community needs and objectives. Principles of flexibility are discussed in greater detail below.

Target Average Gross Density: Residential land use categories establish a target density range, or average gross density, such as 2-4 dwelling units per acre for the LDR-Low Density Residential category. Land uses established by the Plan, including the range of densities specified in residential categories, are not entitlements to development rights. As stressed above, the plan is only a guideline and permitted maximum development intensities and densities are contingent on a development proposal demonstrating that all requisite standards and requirements of the City code have been met. Additionally, there are a number of factors that may influence whether a proposed density is appropriate for a given development site. Factors that should be considered in evaluating densities within the category ranges may include, but are not be limited to:

- Whether Adequate Community Facility Standards can be met;
- The need for land use transitions to ensure compatibility with adjacent development or environmentally sensitive areas;
- Instances where resulting net clustered densities may not in keeping with the intended character of the land use category;
- Cases of infill development where densities at the higher end of a density range are needed to achieve redevelopment objectives related to upgrading existing neighborhoods and/or compact development; and
- To achieve design objectives related to neighborhood variety and diversity, and to meet housing needs and affordability.

Unused Density within Bubble: Within a specific land use “bubble” infill development properties may utilize unallocated housing units (prorated per acre) in a land use “bubble” if the existing development within the “bubble” has a lower gross density than established in the Plan. In such cases, the above factors should be considered in evaluating whether proposed infill densities are appropriate.

Clustering Residential Density: The Land Use Plan includes residential land use categories representing various target density levels. A wide range of housing types and densities are possible within a project for each of the categories, except Estate Residential. In addition, the Land Use Plan encourages clustering of residential homes in appropriate locations. The following guidelines should be used in evaluating plans that include the clustering of density within the various density ranges of residential land use categories.

Development areas should be planned to protect views of distinctive natural features, such as ridge lines, open space separators, mountain backdrop, major bodies of water, wildlife habitat and other smaller natural areas and parks. Considerations in planning development clusters should include, but not be limited to:

- Where views of buildings would disrupt the view or value of established open space or natural features, buildings should be integrated into the existing natural character through sensitive location and design of structures and associated improvements. For example, visual impacts can be reduced and better view protection provided through careful building placement and consideration of building heights, building bulk, and separations between buildings. Also, variations in rooflines and building mass, architectural design and color, and use of natural materials can be used to maintain the visual integrity of the landscape and minimize large expanses of flat planes in highly visible locations.
- Compatible densities should be planned contiguous to existing single family developments or natural features, with densities graduated in intensity away from the adjacent development or natural feature. Proposed lot areas or housing types should approximate adjacent lot areas and housing types to ensure better compatibility.
- Buffers and setbacks should be increased where the adjoining uses are incompatible or where the adjoining use is a public area or significant natural feature.
- Substantial grade differences between developments should be considered and impacts mitigated with building height limitations.

- Buildings should be clustered and located along contour lines in a manner that minimizes disturbance of slopes and protects views of the natural feature.

Area for Public Facilities: In each general-defined area or “bubble,” the Future Land Use Plan Map identifies a recommended primary land use with designations like: Estate Residential, Low Density Residential, Regional Activity Center, Corridor Commercial, etc. Within these “bubbles” it is preferred that appropriate open spaces will be set aside, public and quasi-public uses may be located, and parks and recreation uses will be provided in conjunction with the primary land use of each category. The specific type(s) of uses and design is discussed in the development review process.

Mixed-Use: Provisions for “mixed-uses” have been incorporated into many of the land use categories. “Mixed-use” is promoted within the Regional Activity Center, Downtown Activity Center, Neighborhood Activity Center, and Employment categories. The activity centers are intended to provide a “village” atmosphere where it is possible for residents to live, work, and shop in the same area. These activity centers will also serve as public and commercial centers for surrounding suburban development, with sufficient pedestrian and bicycle connectivity to these surrounding neighborhoods. The Employment category provides for a wide range of uses, including residential uses where campus-type settings are encouraged. Given the objective to achieve a diverse and vital mixture of uses, a high degree of flexibility is needed in determining the specific range, type and density and intensity of use that can be permitted within activity centers.

Residential Uses in Activity Centers: For development proposals within Employment and Regional Activity Centers, land area may be appropriate for residential development when in accordance with performance criteria of this Plan and the applicable development review process. The specific amount of land area within these centers that may be allocated to residential use will vary and is not limited by any specific percentage, however, provision must be made to ensure that adequate land area is provided for or reserved to meet the potential demand and need for commercial goods and services. A market study, for example, may be requested to substantiate that the commercial need and demand has been met or reserved.

Land Use Boundaries: Land use “bubbles” have been drawn with imprecise boundaries to reinforce the flexible, non-parcel specific quality of the plan. Consequently, in applying the plan to a specific parcel, often boundaries of a specific land use bubble may not correspond closely with parcel boundaries. Also, in some instances, portions of parcels are sometimes excluded from a bubble. In such cases, an interpretation must be made as to the intended use within the excluded area.

Land Use Bubbles and Parcel Boundaries: For parcels where only a minor part is excluded, the land use designation applied to the larger balance of the parcel shall be assumed to be applied to the excluded portion.

Where a parcel is entirely or substantially excluded, the nearest appropriate category boundary, as determined by City staff, shall be determined to apply to the excluded area or parcel.

In the case of parcels that fall within two or more land use categories, City staff shall approximate the amount of land area within each category and apply the guidelines for each category proportionately. For parcels that fall into one or more different residential land use categories, allowable densities from one land use category bubble may be spread, or averaged into the portion of the parcel that falls into another land use bubble. In such cases, transition guidelines should be applied so that new development is consistent with the intended character of the land use category, and existing conditions, such as natural features and surrounding neighborhoods, should not be adversely impacted.

In cases where clear determinations cannot be made regarding land use category boundaries on the Map, amendment procedures provided in Section 7 of the Comprehensive Master Plan can be used to amend the Map and clarify boundaries.

Applicability of Other Plans: Development proposals are subject to all other current City plans. Some of these documents are referenced throughout this document and summarized in Appendix A. Developments proposals are also subject to the City's environmental review process associated with a specific development application. These other plans and review procedures may affect development plans and resulting intensities and densities of development. For example, within the area designated by the Land Use Plan generally north of 57th Street, land uses are guided by the document "The Plan for the Region Between Fort Collins and Loveland." Additionally, the City's Open Lands Plan should be consulted regarding issues related to open space preservation and natural areas. A full index of plans and documents is provided in Appendix A.

4.4 ANALYSIS OF MAJOR CORRIDORS AND REDEVELOPMENT OPPORTUNITIES

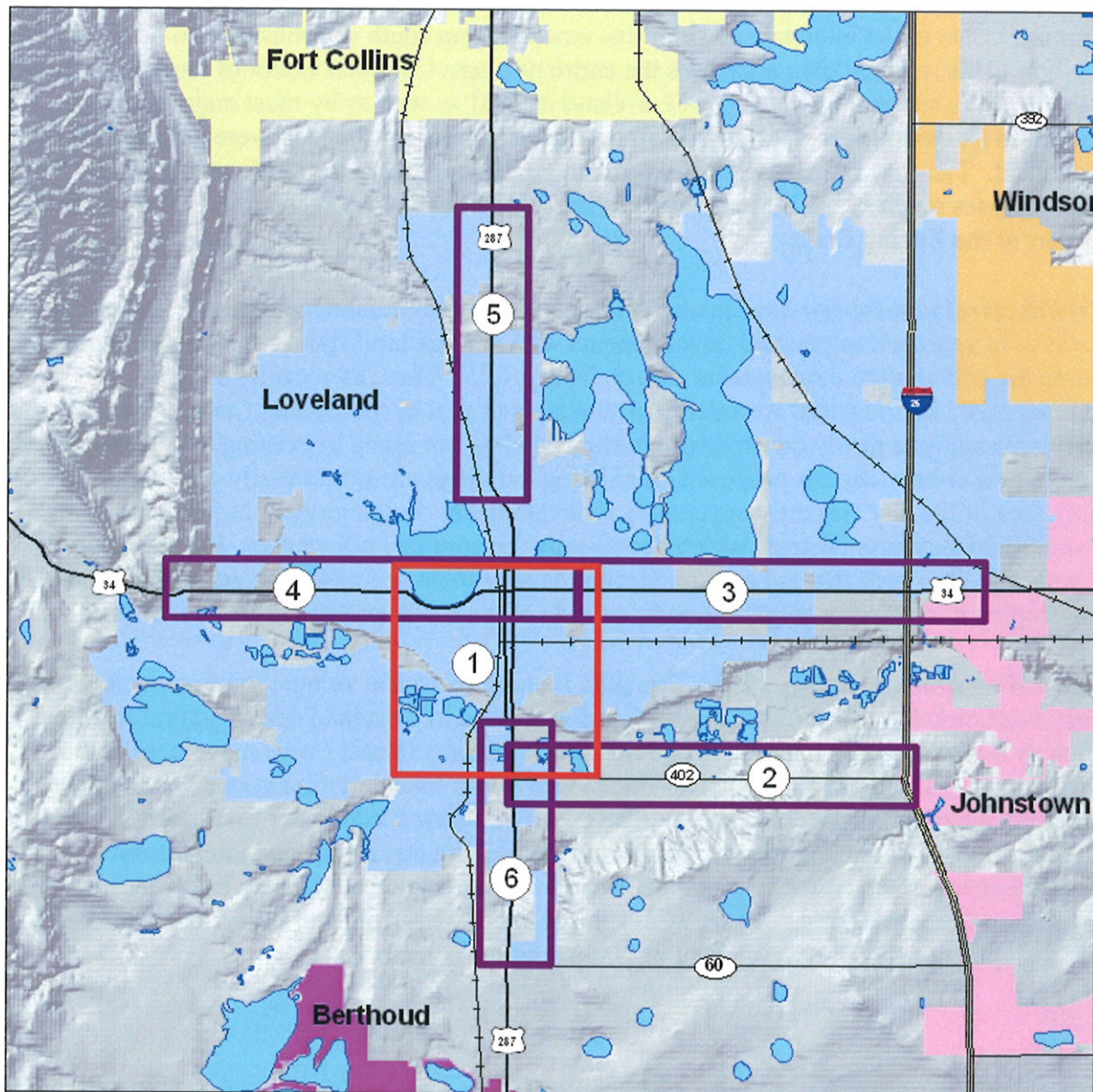
The following sections highlight major highway corridors and the downtown and its surrounding neighborhoods. Each subsection provides a brief description of the area, likely significant development constraints and opportunities, and a set of recommended action steps. These areas have been selected for more detailed analysis for several reasons.

- Corridors, because of their visibility and role as a focus of commerce, have a significant impact on the image, appearance and future economic vitality of the City.
- Many of the City's older commercial corridors are characterized by strip commercial development which suffers from obsolescence and is at risk of decline as new, higher quality, and more competitive commercial centers emerge at the edges of the City.
- Recent successful redevelopment projects in the downtown have created the first real opportunity to achieve the long sought after goal of a revitalized downtown. Encouraging and guiding a "second tier" redevelopment effort will be a crucial step toward achieving this ultimate goal.

Previous Corridor Plans

Major arterial corridors have long been a priority in sub-area planning efforts undertaken by the City. As a consideration in the following sections, below is a status evaluation of the City's existing corridor plans. Also included below is an assessment of the City architectural and redevelopment standards since these can play an important role in the future redevelopment of commercial corridors. In summary, most corridor plans are limited in scope and do not reflect the level of recent commercial development activity along most of the City's corridors. Architectural standards are typically limited in scope to a specific developments or districts, or are aimed at only new construction and do not have broad applicability to redevelopment proposals.

- ***U.S. Highway 34 Corridor Study, 1993:*** This plan includes design guidelines applicable to the eastern portion of the Hwy. U.S. 34 corridor from Boise Ave. to I-25. The design guidelines stress preservation of mountain views and elements of the streetscape. These guidelines do not extend to portions of the corridor west of Boise Avenue nor do they address redevelopment issues common to the western portions of this corridor. Also, these guidelines are outdated because philosophies regarding the character of the corridor are not consistent with the level of recent development activity. For example, these guidelines do not reflect extensive new commercial, office and residential development within the Millennium project (see comments below).
- ***Major Arterial Corridors Design Guidelines, 1997:*** This document establishes design guidelines for the US 34, State Hwy. 402, U.S. 287, Taft and Wilson Avenue corridors. Guidelines address urban, suburban and rural design characteristics and address both architecture and site design issues. These guidelines are also out of date in that "rural" zones are established at the outer extents of the corridors that do not reflect recent significant developments in these areas. "Rural" zones designated by the plan include the northern portion of the U.S. 287 corridor and the eastern portion of the U.S. 34 corridor that have also seen extensive development activity in recent years and are no longer "rural" in character.



Major Corridor and Area Planning Opportunities

- ① Downtown and Surrounding Neighborhoods Area
- ② HWY 402 Corridor
- ③ East U.S. 34 Corridor
- ④ West U.S. 34 Corridor
- ⑤ North U.S. 287 Corridor
- ⑥ South U.S. 287 Corridor

City of Loveland

Overview of Proposed Area and Corridor Plans

- ***I-25 Corridor Plan, 2001:*** The I-25 Corridor Plan was adopted to guide transportation improvements in the interstate corridor that extends from south of Johnstown to north of Fort Collins. This regional plan addresses the entire northern Colorado extent of the I-25 corridor. The plan was adopted by the City of Loveland in 2001 as well as by most major northern Colorado Communities. Design guidelines that accompanied the plan were not adopted by Loveland. The City primarily relies on design guidelines within the Millennium project that encompasses much of the I-25 area within the City and newly adopted architectural guidelines as part of the Zoning Code.
- ***Architectural and Design Standards:*** Many newer commercial developments in the City have been approved as planned developments with architectural standards, the most notable being the Millennium development at U.S. 34 and I-25. The City recently adopted Commercial and Industrial Architectural standards as part of the Zoning Code. However, these standards apply to newly constructed buildings and do not apply to existing development sites unless new construction is proposed, or existing buildings are substantially expanded. The only area of the city currently covered by redevelopment design guidelines is the Be-Established Business District, which covers only the core downtown area. Further, there are few design standards that apply to residential development and none that are tailored to infill development in existing neighborhoods, outside of the Be-Established Business district.
- ***East / West Mobility Study, 1997:*** This plan focused on traffic volume issues associated with east/ west mobility. East / west mobility is constrained in Loveland due to natural features, such as Boyd Lake and Lake Loveland that create barriers to east / west movement in the community, and existing inadequacies in the east / west transportation system. It included recommendations for several east / west arterials including Eisenhower Boulevard. Recommendations for Eisenhower Boulevard focused on travel lane and intersection improvements. Intersection improvements were recommended at Wilson, Taft, Madison and Cleveland/Lincoln Avenues. This study did not address aesthetics or issues associated with redevelopment or infill development of land along the corridor.

West U.S. 34 Corridor

Summary W. U.S. 34 Corridor

- City's **primary business corridor** and gateway for visitors
- **Strip commercial** predominate use of frontage
- Most of corridor **served by utilities**, road network
- Action Plan:
 - Evaluate **redevelopment options** – incentives and special districts
 - Establish **redevelopment guidelines/incentives**
 - **Deepening** commercial redevelopment sites
 - Implement **streetscape/beautification** enhancements



Strip Commercial

Existing Land Use: This segment of U.S. Hwy 34 (Eisenhower Blvd.) extends from roughly the Greeley Loveland Canal to the western limit of the City's Growth Management Area (GMA). The U.S. 34 corridor as a whole is the community's primary business thoroughfare. It is also Loveland's front door to visitors on their way to destinations in the mountains. The future redevelopment and enhancement of this corridor will be central to the City's ability to sustain the viability of many of its older neighborhoods and capture a greater share of the potential tourism market.

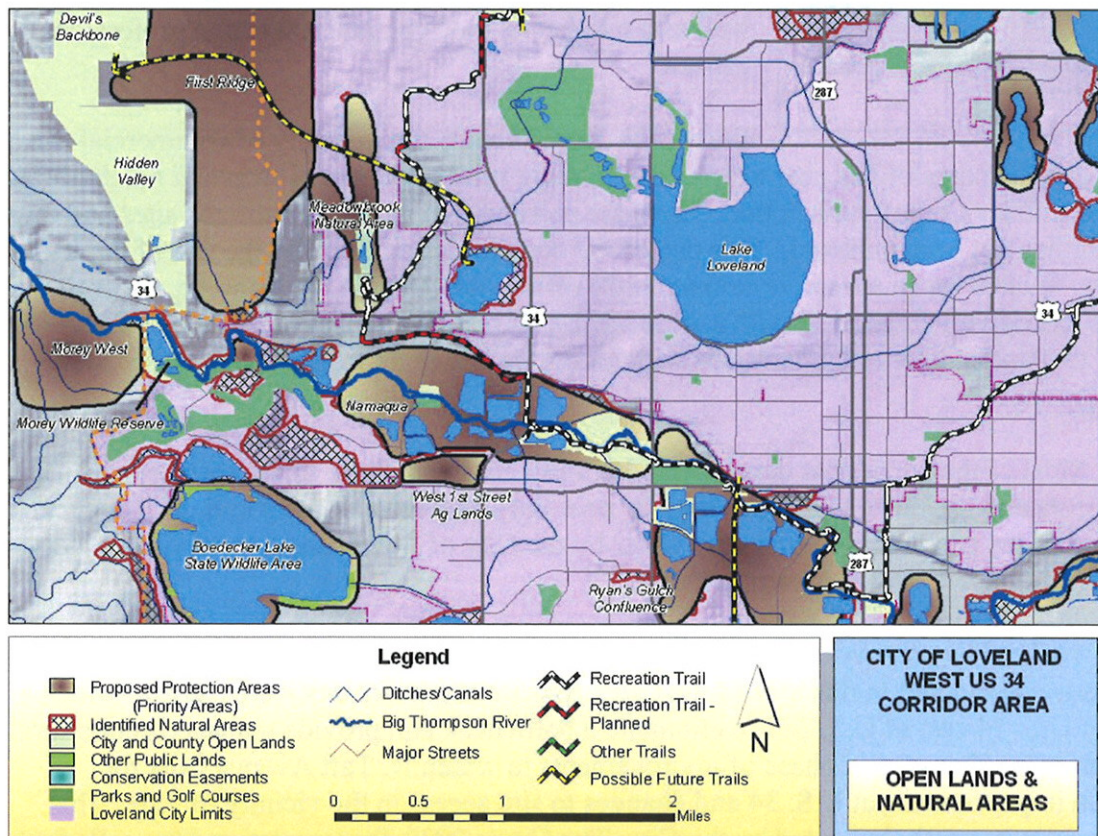
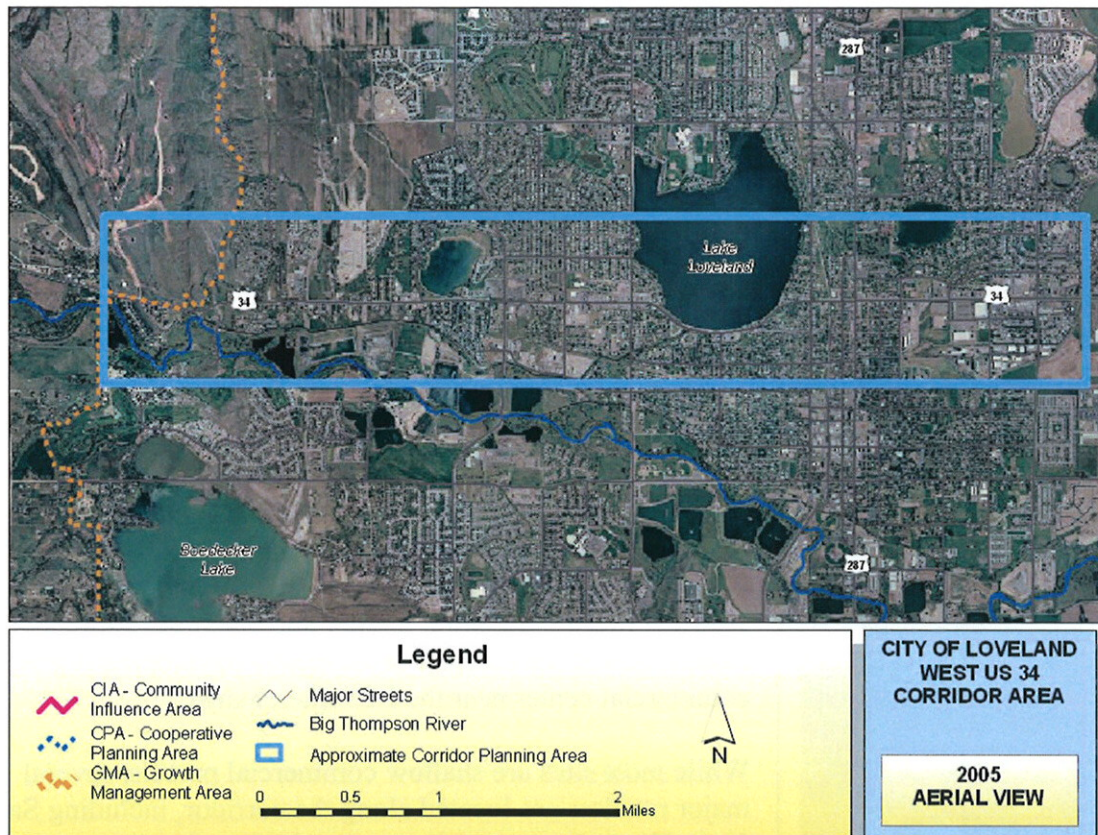
The predominant land use along the road frontage is strip commercial, a pattern that characterizes much of Loveland's older corridors. Many parcels are shallow and lack landscaping, architectural quality and amenities found at the eastern end of the corridor in the newly developing regional commercial center near the I-25 interchange.

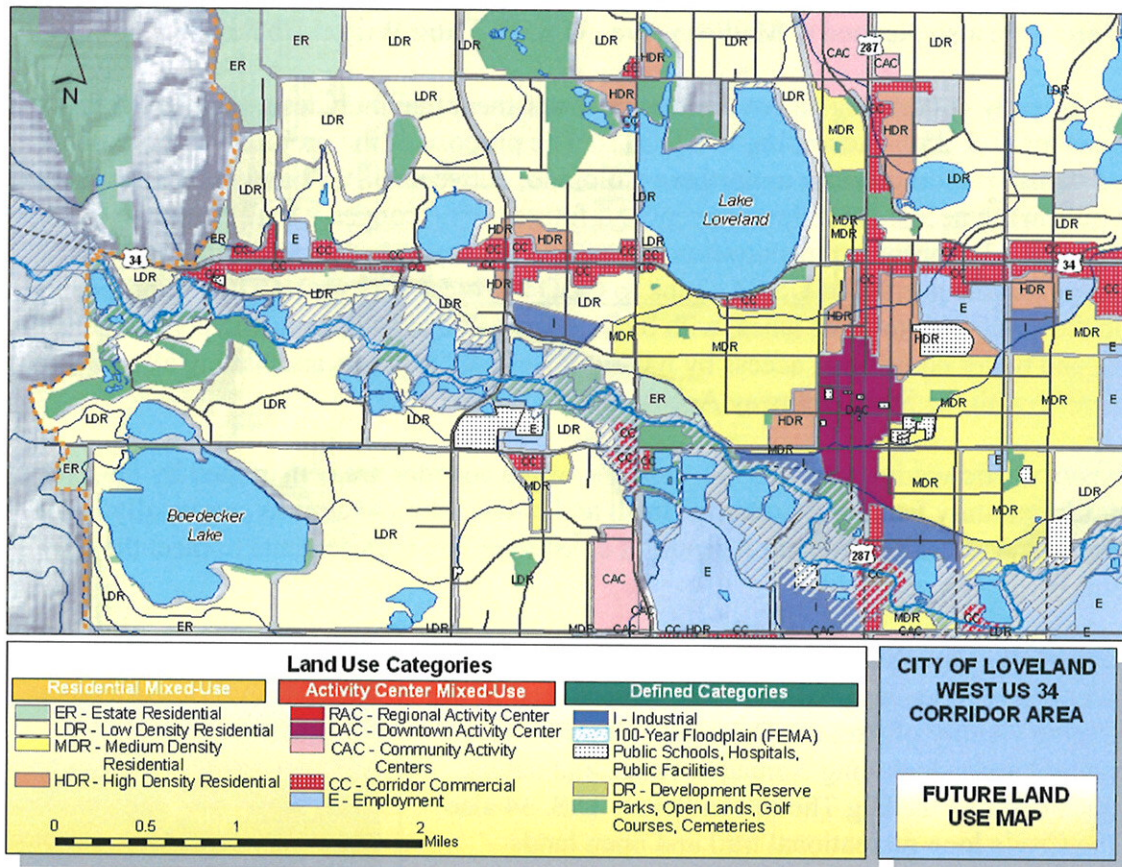
While most sites are shallow commercial parcels, several major retailers are located along the corridor, including Sam's Club, Home Depot and K-mart. Additionally, the corridor is home to Group Publishing, a growing primary employer, as well as a number of medical, real estate and professional offices.

West of Wilson Avenue, the intensity of commercial use decreases and the corridor has characteristics of a more rural commercial strip and much of this area remains under County jurisdiction. There are more vacant and under utilized sites and most of the corridor has not been annexed. This end of the corridor is anchored by the site of Group Publishing, situated on an attractive campus-style office site. Behind the frontage, the entire corridor is extensively developed with a wide variety of residential uses of all types. These include many of Loveland's older neighborhoods with modest housing, as well as a number of multi-family apartments.

Utilities: Most of the corridor is developed with a full complement of urban services and utilities. Improvements and upgrades to utilities may be necessary as redevelopment and infill occurs. The western end of the corridor is served with water by the City of Loveland. Sanitary sewer service has not been extended west of Morning Drive.

Road Network: The primary and secondary road network is in-place and no new collector or arterial roads are planned in this area of the City. Recent improvements were made to widen a segment of U.S. 34 east of U.S. 287 to eliminate a bottleneck and provide managed center turning lane movements. The second phase of improvements to widen N. Taft Avenue calls for intersection improvements at U.S. 34 and changes to site access in the vicinity of Taft. This improvement is currently budgeted by the City. The City's 2030 Transportation Plan calls for U.S.





2030 Transportation Plan Map
(upcoming)

34 to have six through lanes to U.S. 287 and four lanes from that point west. Future intersection improvements are also planned at Madison Ave., U.S. 287, and Wilson Boulevard.

CDOT is currently conducting an environmental assessment that includes a segment of this corridor east of U.S. 287. According to CDOT: "The purpose of the project is to provide an improved transportation corridor in northern Colorado, between US 287 and LCR 3, which would meet the following needs: (1) relieve current and future traffic congestion, (2) improve local and regional access, (3) improve transportation safety, and (4) support approved economic development for this portion of US 34. ([Link to CDOT Project Website](#)) CDOT is proposing widening the study area to three lanes, with bicycle lanes and sidewalks, using context sensitive solutions; and better controlling access by having fewer access points and having all new access points comply with the State Highway Access Code.

Due to heavy traffic volumes on U.S. 34, sections of the corridor are constrained by the City's Adequate Community Facility Standards. Infill and redevelopment activity, especially in the vicinity of Taft Avenue and Wilson Avenue, is constrained by requirements to meet the City's ACF standards.

Environmental: The eastern end of the corridor does not include any natural area designations. The western end of the corridor in the vicinity of Rossum Drive includes portions of several natural areas, including Namaqua Ridge and natural areas associated with the Big Thompson River. U.S. 34 also crosses the City's loop recreational trail and open lands purchased for trail right-of-way.

The corridor features several significant view amenities. These include the southern shore of Lake Loveland and vista of the foothills and Mummy Range to the west. The western end of the corridor is also the gateway to scenic landforms including Namaqua Ridge, and Devils Backbone and entrance to the Big Thompson Canyon outside the City's GMA.



Development Activity: Home Depot, opened in 2003, has been the only major retail addition in recent years. The 110,000-square foot Shopko department store adjacent to Home Depot was vacated in 2005 and is currently undergoing re-occupancy. A ten-acre meeting and hotel complex has been proposed on vacant land near the Group Publishing site. Other smaller office and retail buildings have been built over the past five years.

Future Land Use Plan: With a few exceptions, the frontage of U.S. 34 is designated CC-Corridor Commercial. This designation reflects the established strip commercial land use pattern which is unlikely to change. Beyond the frontage, designations range from E-Employment, I-Industrial, and HDR-High Density Residential at the eastern end in the vicinity of the site of the former Sugar Factory, to MDR-Medium Density Residential and LDR-Low Density Residential in most other areas. Several of these land use designations are considered mixed-use categories and provide flexibility consistent with the need to encourage development and redevelopment. This land use framework should be adequate as the corridor changes and improves over time.

Downtown and Surrounding Neighborhoods

Summary Downtown

- Identify “second tier” redevelopment opportunities and strategy/vision
- Evaluate/adjust standards and regulations to fit redevelopment/infill conditions
- Neighborhood stabilization through code administration
- Continue streetscape and establish special event staging area
- Coordinate linkage with Fairgrounds reuse planning
- Manage public parking

Existing Conditions: Loveland’s downtown includes a core commercial area of approximately 30 city blocks centered in the vicinity of 4th Street and Lincoln and Cleveland Avenues. The core is surrounded by the City’s historic residential neighborhoods. The area benefits from a wealth of civic uses including the Loveland Civic Center (administrative offices, Library, Chilson Recreation Center), Loveland Museum Gallery at Lincoln and 5th, and Rialto Theater on 4th Street.

Residential neighborhoods surrounding the downtown core are generally in healthy condition, with the exception of areas in the vicinity of 1st Street and Lincoln and Cleveland Avenues. These neighborhoods have declined and suffer from substandard conditions.

This area also includes the site of the former Sugar Factory and old Fairgrounds. The future reuse and redevelopment of these areas will influence the future of the downtown area.

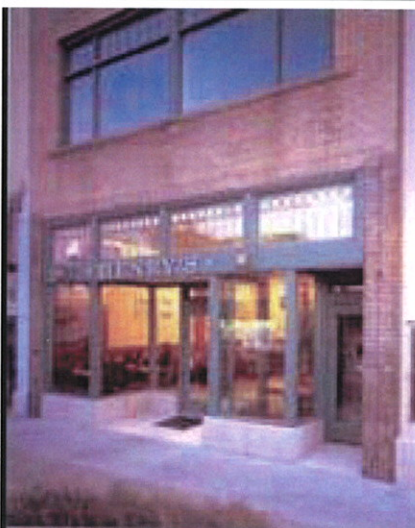


Historic Downtown Home

Historic Preservation: In 2002, the City established a local Historic Preservation Ordinance and Board with authority to designate locally significant buildings and sites. Since that time, 13 individual properties in the downtown area have been designated, and a historic district of 13 homes was established in the 800 and 900 blocks of W. 4th Street. Designated properties can benefit from state and federal tax credits and state historic preservation grants.

Utilities: Utility systems in this area that have been developed over a long period of time within a confined urban environment and can present a challenge for redevelopment and infill projects. Such problems are difficult to anticipate and careful pre-project planning and due diligence are essential. It is also important that the City’s review and permitting engineering staff understand that unique and flexible solutions are necessary to make redevelopment projects successful.

Recent upgrades have included a \$10-million improvement to the storm drainage system that raised the capacity of the core area to handle storm events with a probability of occurring with a frequency of five years.



Renovated McCluskey Mercantile Building – 234 E. 4th St.

Road Network: The established grid street pattern in this part of the City is an asset. This well interconnected system provides numerous alternative route patterns to relieve potential congestion.

Public Parking: The availability of public parking has long been cited as a concern for downtown businesses. However, a recent study conducted as part of the planning for the Lincoln Place project established that a true shortage does not exist. This study concluded that better management of parking facilities is needed to ensure efficient use of existing facilities. The addition of 200-space public parking garage as part of the Lincoln Place project will improve the availability of day-time parking. New retail and restaurant uses in the downtown will increase the demand on public parking in the future.



Recent neighborhood infill development



"Sugar Factory" site

Urban Renewal Authority: In 2002, the City established the Downtown Urban Renewal project area, its first urban renewal area (see map). The district was established to enable tax increment financing capability, which was employed in the public private partnership that made the Lincoln Place project possible. The downtown URA will continue to be an important source of potential financing for downtown projects. A façade renovation grant program is currently offered with the use of TIF financing.

Development Activity: The most significant recent project in the downtown area, the \$26-million Lincoln Place, is currently under construction on the 600 block of Lincoln Ave. (former "Walgreens block"). This project will include 200 residential units and 22,000 square feet of commercial space on the ground floor. The Lincoln Hotel is currently undergoing a renovation and conversion to 23 affordable housing units, aided by a federal CDBG funding and state historic preservation grants. A number of buildings in the core area have undergone façade and interior renovations and restaurant conversions are happening at an increasing rate. Interest has been generated in preserving the Loveland Feed and Grain building. Reuse options are still being evaluated but may include a restaurant or café, artist studio and gallery space and office lofts.

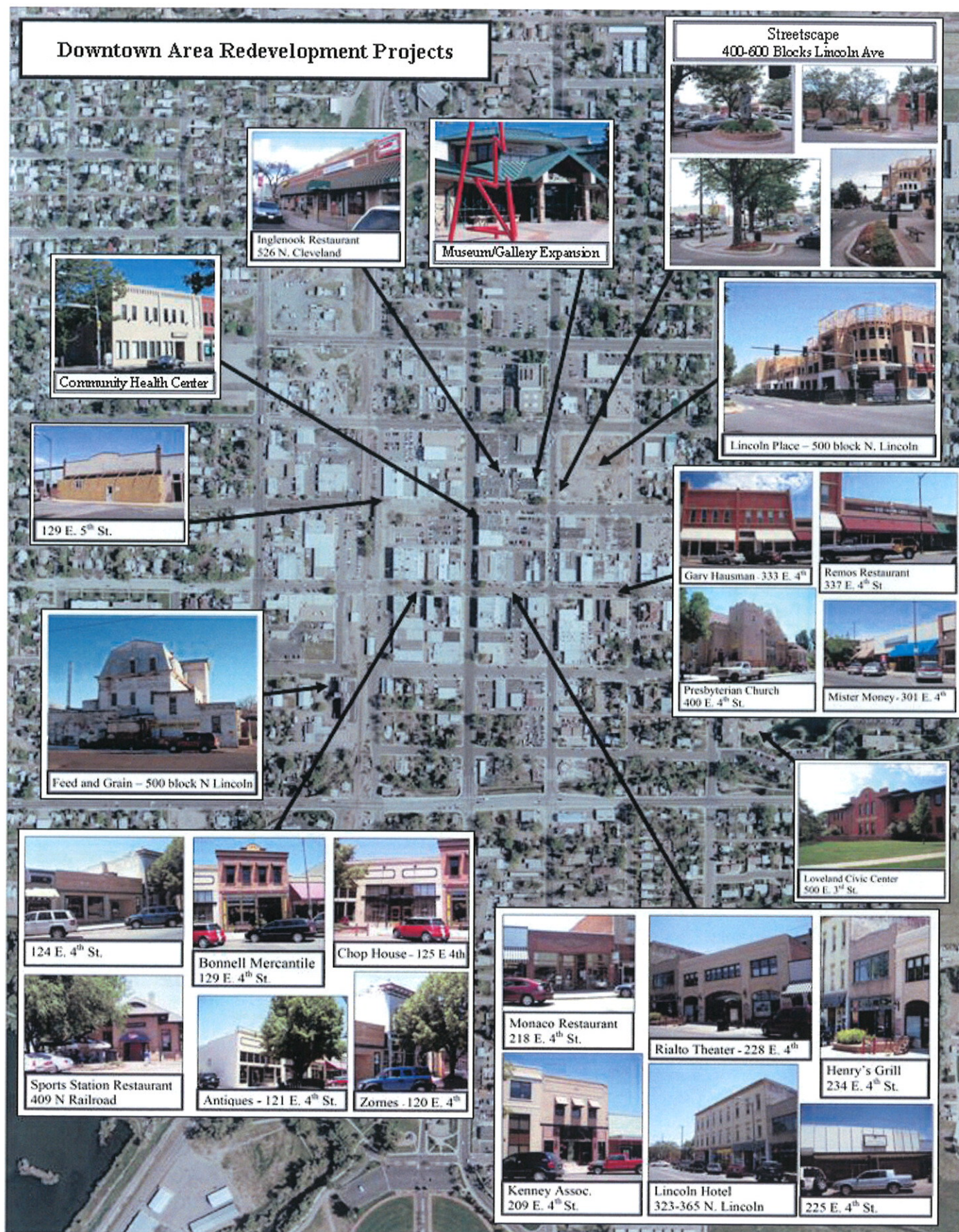
Future land Use Plan:

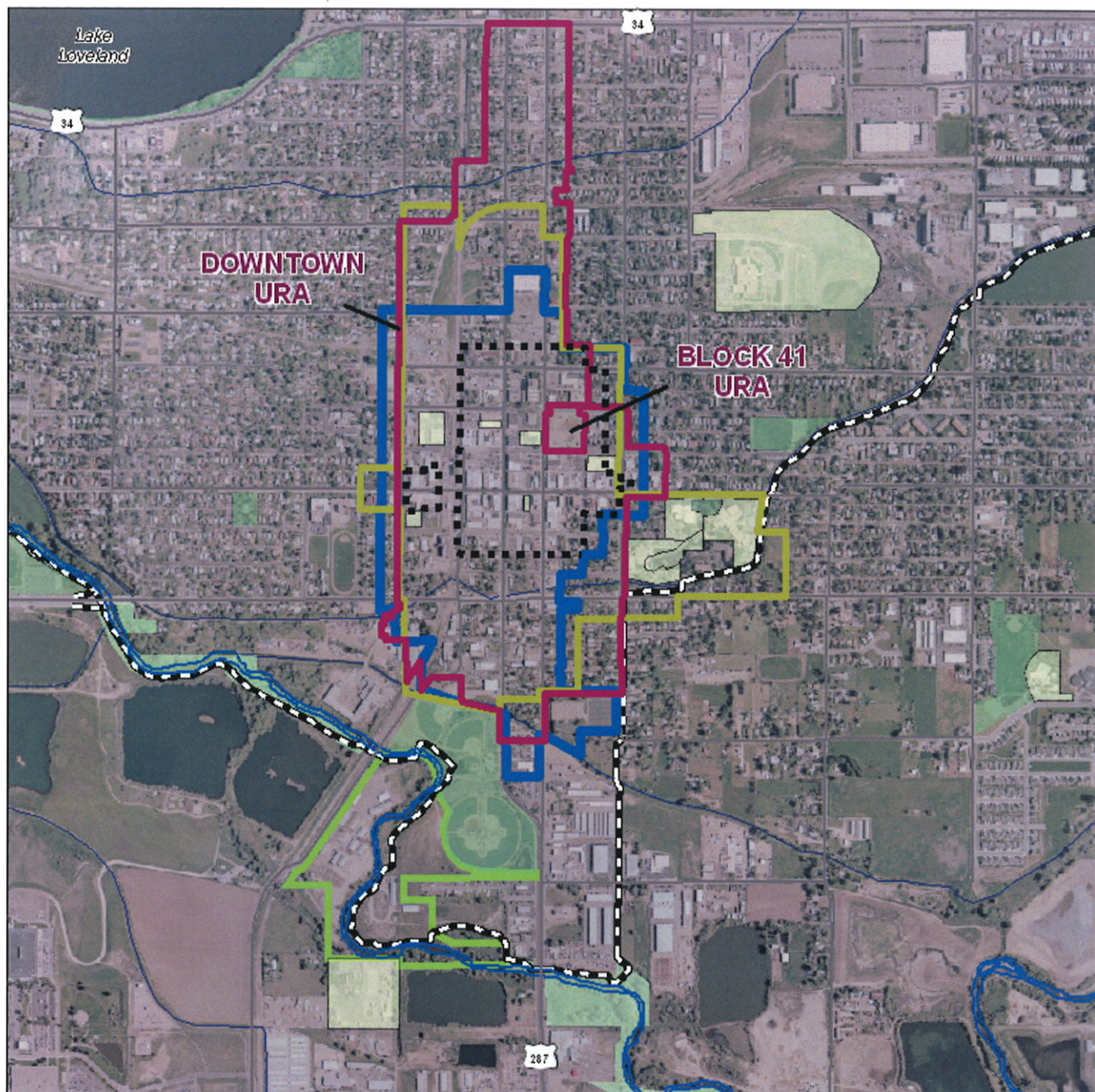
The future land use designation of the downtown core

commercial area is DAC-Downtown Activity Center. Neighborhoods around the downtown are designated MDR-Medium Density Residential and HDR-High Density Residential. There are also areas of I-Industrial and E-Employment reflecting existing uses in these areas. These flexible, mixed-use designations should serve well in reacting to future redevelopment proposals and trends in this area of the City.



Historic Photo of Loveland Feed and Grain Building





Legend

- Downtown URA Boundaries
- Areas Exempt from Capital Expansion Fees
- Existing Business (B-e) Zoning
- General Improvement District (GID #1)
- Old Fairgrounds
- City Facilities
- Parks & Recreation
- Open Lands
- Recreation Trail



Miles

0 0.5 1

CITY OF LOVELAND DOWNTOWN

**URBAN
RENEWAL AND
RELATED
AREAS**

East Hwy 402 Corridor

East Hwy 402 Summary

- New gateway with significant future growth potential
- **Predominately vacant** and in **agricultural use** with wide variety of commercial, industrial and residential uses along frontage.
- 111-acre mixed-use development planned at southeast corner Hwy. 34 and U.S. 287
- Large segment of the **Big Thompson River** and natural areas/floodplain
- Large number of active and permitted **oil and gas wells**
- Extension of **sanitary sewer** and development of **road network** precursor to urban development
- Action Plans:
 - Add to Larimer County **GMA overlay district**
 - Adopt **oil and gas regulations**
 - **Corridor plan** to establish development standards
 - Work with landowners to **facilitate annexation**

Existing Land Use: The east Hwy. 402 corridor extends approximately four miles from U.S. 287 to the I-25 interchange. This corridor is significant for two reasons: **1)** It is largely vacant and has significant commercial, employment and residential development potential over the next 10-15 years; and **2)** it is an important future southern gateway into the City of Loveland.

Conditions vary along the corridor. East of S. St Louis Avenue, the corridor is outside of the City's limits and largely undeveloped. The frontage is, though, developed with a number of residential, commercial and industrial uses. Industrial uses include a large concrete production operation and several on-going extraction and processing operations. Residential uses are primarily associated with agricultural acreage and there are several rural subdivisions. Commercial uses include a garden supply and plant nursery, RV sales and similar types of uses. North of Hwy. 402, there are a number of active and inactive borrow pits along the river corridor, one of which is now a State Wildlife area (Simpson Ponds) located just north of Hwy 402 along CR 9E. South Hwy. 402, and beyond the frontage, irrigated agricultural lands predominate.



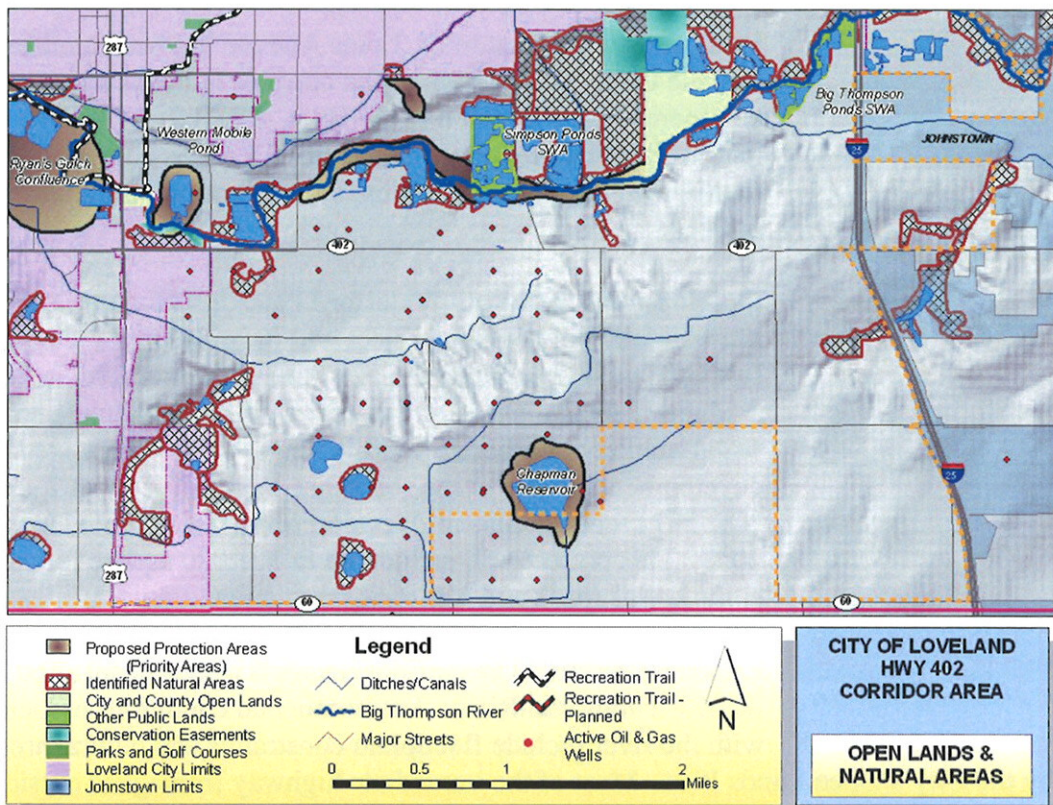
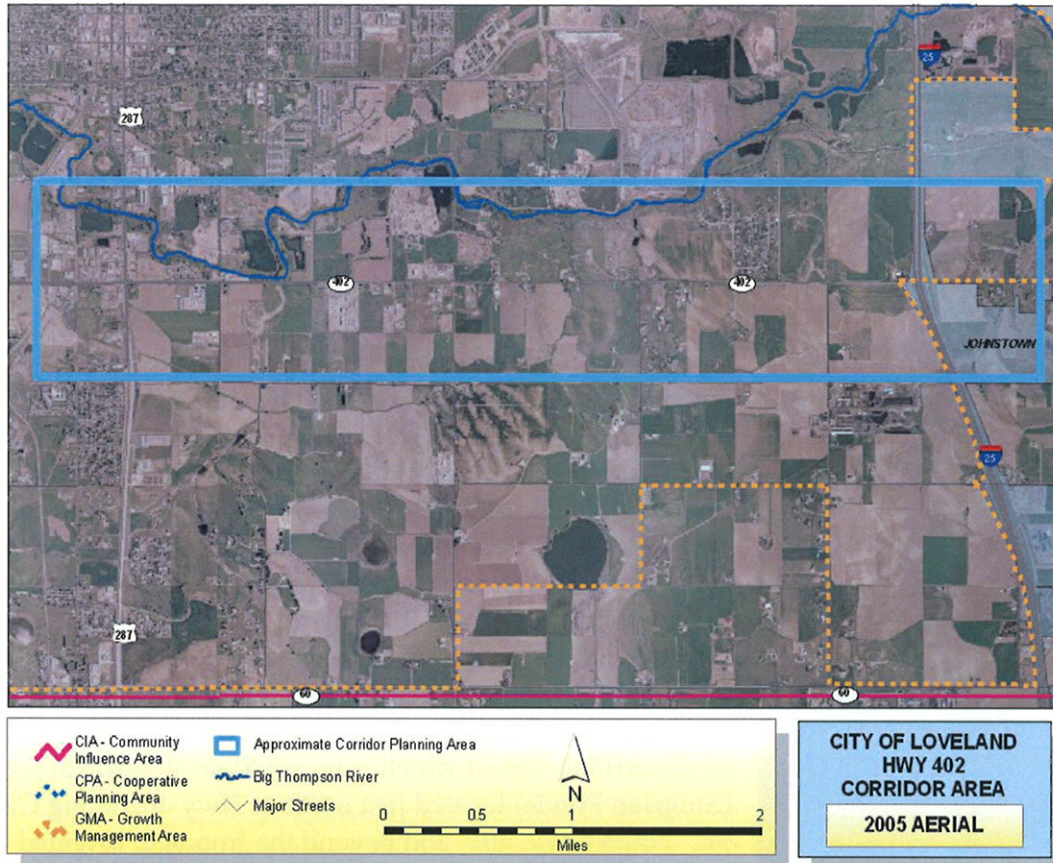
Extraction and processing activities

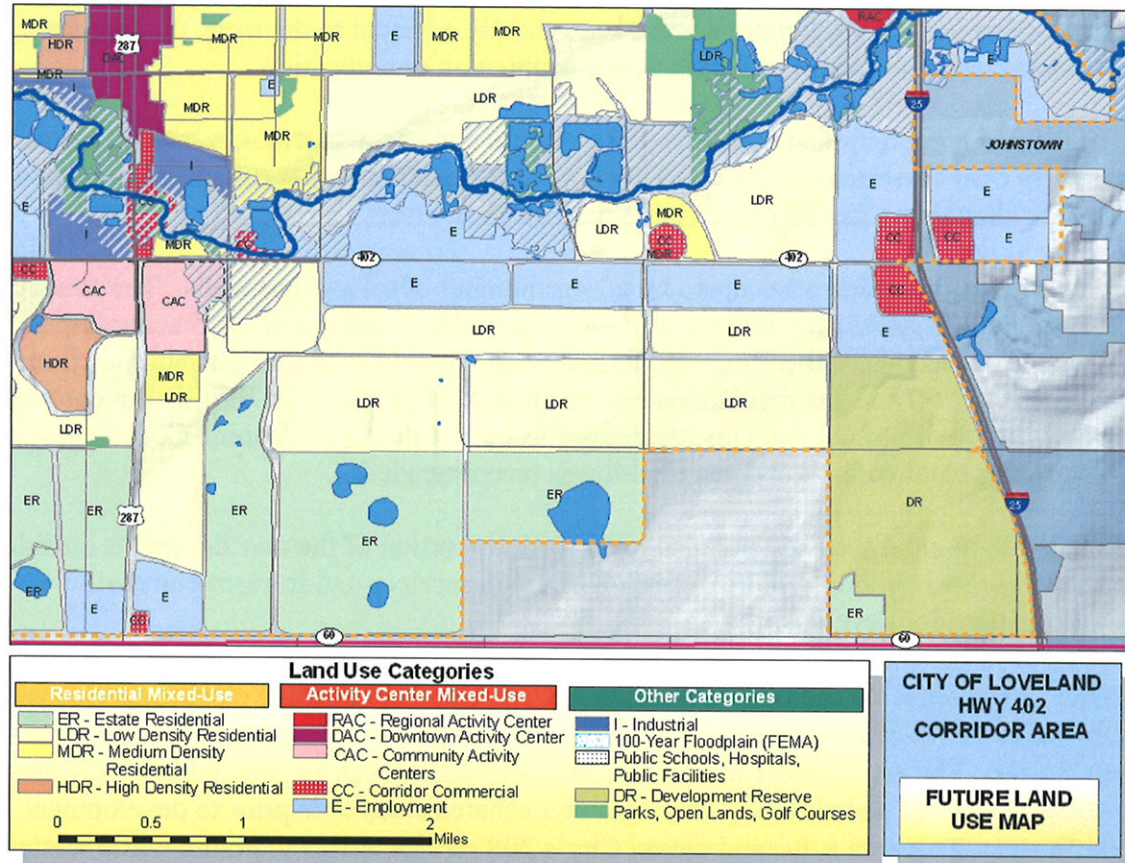
Most of the land west of St. Louis Avenue has been annexed into the City. This portion of the corridor includes strip commercial uses oriented to the Hwy. 402/U.S. 287 intersection, a self-storage operation, RV sales, a large multifamily apartment complex, vacant land and agricultural uses.

Development Activity: Waterford Place, a 170-unit affordable rental housing project was developed on the north side of Hwy 402 between U.S. 287 and St. Louis Ave. in 2003. A planned second phase of this project is on hold due to soft rental market conditions. South Village, a 111-acre mixed-use development located at the southeast corner of Hwy 402 and U.S. 287 received General Development Plan approval in 2003. This project will include up to 305,000 square feet of commercial space and 550 residential units.

Environmental: The corridor parallels a significant stretch of the Big Thompson River. Environmental conditions associated with the river include floodplain constraints and natural area

designations by the City's Open Lands Plan. Most of the immediate highway frontage is outside of the direct influence of the river and these factors will primarily influence development of lands





2030 Transportation Plan Map
(upcoming)

north of Hwy 402. Most natural area designations are rated “5” or lower, reflecting disturbances from mining operations. Several natural areas immediately adjacent to the river, though, are highly rated and designated as priorities for future acquisition or dedication.

Because of the rise in topographic elevation at the eastern end of the corridor, mountain vistas are more prominent than at western locations. This is a valuable amenity that enhances development potential. Care should be taken to ensure protection of these vistas.

Oil and Gas Wells: This area is occupied by a large number of oil and gas wells. The attached Open Lands & Natural Areas map illustrates active or permitted wells as of 2005 according to the State of Colorado. Adequate setbacks should be provided separating oil and gas facilities from development. Local oil and gas regulations can be implemented, provided they do not conflict with state law. Adoption of Oil and Gas regulations as part of the City’s Zoning Code to ensure compatible development with oil and gas facilities is recommended.

Utilities: The following discussion pertains to the eastern portion of the corridor that is outside of the City’s incorporated boundary. The extension of urban services and infrastructure will be necessary as the corridor develops.

- **Electric:** This area is served by Poudre Valley REA. Upon annexation, electric service would be converted to City of Loveland.
- **Storm Water:** The area is currently outside the Loveland Master Drainage Plan study area and would need to be added to the study area or a subarea study area prior to development.
- **Waste Water:** This area is located within City’s 208 service territory. Future waste water service may be provided by another source.
- **Water:** This area is in the Little Thompson Water District which will continue to provide water service.



Development at west end of corridor



Mountain vistas

Road Network: Existing north/south connections that cross the Big Thompson River include St. Louis Ave. and C.R. 9E. According to the City’s 2020 Street Plan, the future extension of Boyd Lake Ave. (C.R. 9) as a four lane arterial would serve as the major north/south link connecting to Hwy 34 to the north. Other minor arterial road connections are shown by the 2020 Street Plan connecting the corridor to the existing County Road network south of Hwy. 402. The Colorado Department of Transportation (CDOT) is conducting an environmental assessment of Hwy. 402 as a precursor to more detailed planning to widen this road to a four-lane arterial to meet future travel demand. ([Link to CDOT project web site.](#))

IGA/Annexation: Most of the corridor east of St. Louis Avenue is currently not included in the City’s intergovernmental agreement with Larimer County regarding annexation and development within the City’s Growth Management Area (GMA). The addition of this area to the IGA is necessary to help ensure annexation of these lands as development occurs, or that development under County

jurisdiction meets the City's development standards. It should be noted that the area east of I-25 along Hwy 402 is specifically excluded from being included in the City's IGA with Larimer County due to conflicts between the Loveland GMA and areas claimed as part of Johnstown's growth area.

Future Land Use Plan: The majority of the Hwy 402 frontage is designated E-Employment. This designation is consistent with the City's vision of the corridor as a major future center of employment and commercial activity. Nodes of CC-Corridor Commercial uses are indicated at the I-25 interchange and at the future intersection of Boyd Avenue (CR 9) and Hwy. 402. A Community Activity Center anchors the western end of the corridor at the intersection with U.S. 287. LDR-Low Density Residential is shown along the corridor frontage east of borders the E-Employment designation and the projected density drops to ER-Estate Residential south of the corridor.

The Land Use Plan for this area is adequate to serve as a general framework to guide future development. As conditions change and land use patterns emerge and mature over time, refinements to the Plan may be necessary. An amendment to the E-Employment category was done in 2004 to allow a mix of retail and service in addition to primary employment uses such as office and light industrial.

South U.S. 287 Corridor

Summary S. U.S. 287 Corridor

- Significant potential **future growth corridor**
- **Strip commercial** predominate use at north end
- **Utility services available**
- **Action Plan:**
 - Coordinate detailed **corridor planning** with Hwy 402
 - Encourage **annexation**
 - Encourage **upgrading** older strip commercial

Existing Conditions: This corridor extends from the Farmer's Ditch at the southern end of downtown Loveland to Hwy. 60 at the southern terminus of the GMA. Between the Farmer's Ditch and Hwy. 402, strip commercial is the predominate use. Much of this area developed under County jurisdiction with few development standards. More recent commercial development in this area has developed under City jurisdiction with better site development standards. This corridor, together with Hwy 402, will serve as an important future growth area.

South of Hwy. 402, land uses alternate between large agricultural parcels and commercial and residential development. Commercial uses include RV sales and storage facility, landscape nursery, and self-storage facility. Residential developments include the Derby Hill neighborhood, a large subdivision on the west side of U.S 287, and several larger lot subdivisions under County jurisdiction.

The site of the former Larimer County fairgrounds and Barnes Park are located on the west side of U.S. 287, north of 402. Barnes Park includes the City's softball complex and is traversed by the community loop trail, which passes under U.S. 287 at the bridge over the Big Thompson River. Current concepts for reuse of the Fairgrounds include expansion of the Barnes Park ball field complex with several more fields on the east side of the river. The west side of the river would be used for a variety of recreational activities, with the possible addition of a multiple-use indoor community facility. The City recently acquired a 7-acre parcel from the County to be included in these park development plans.

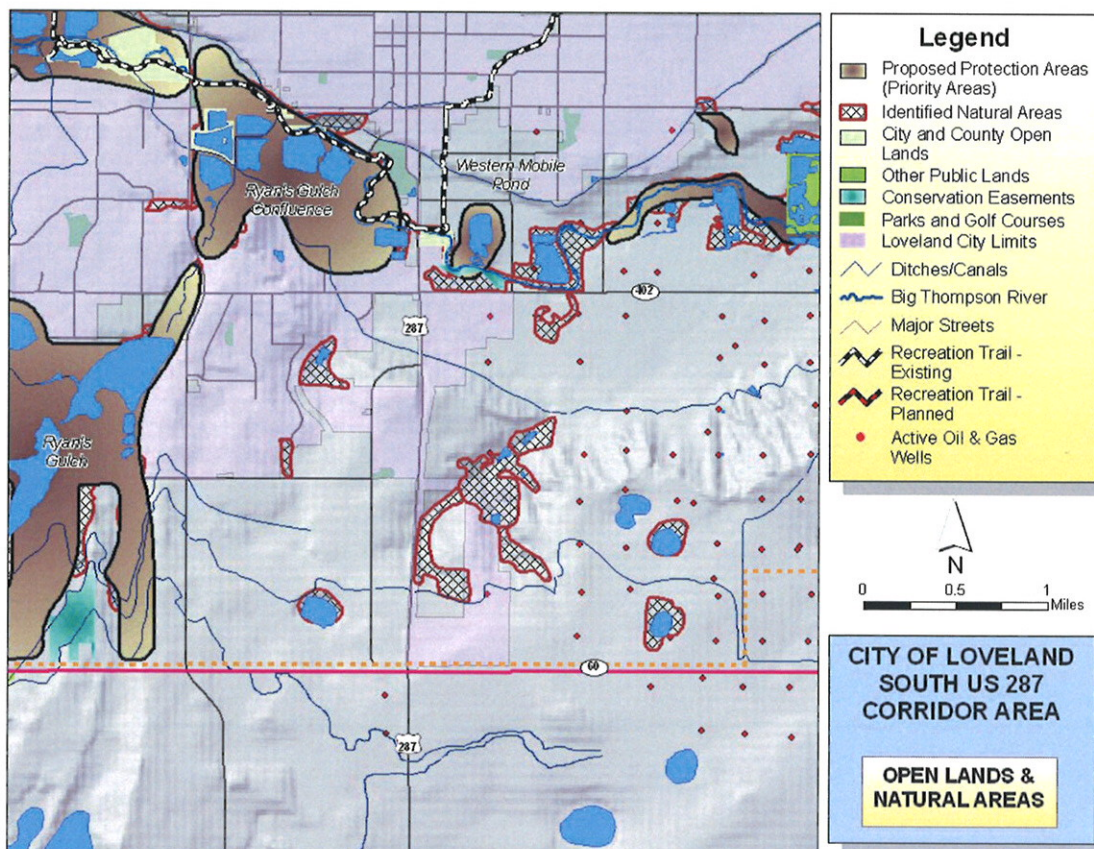
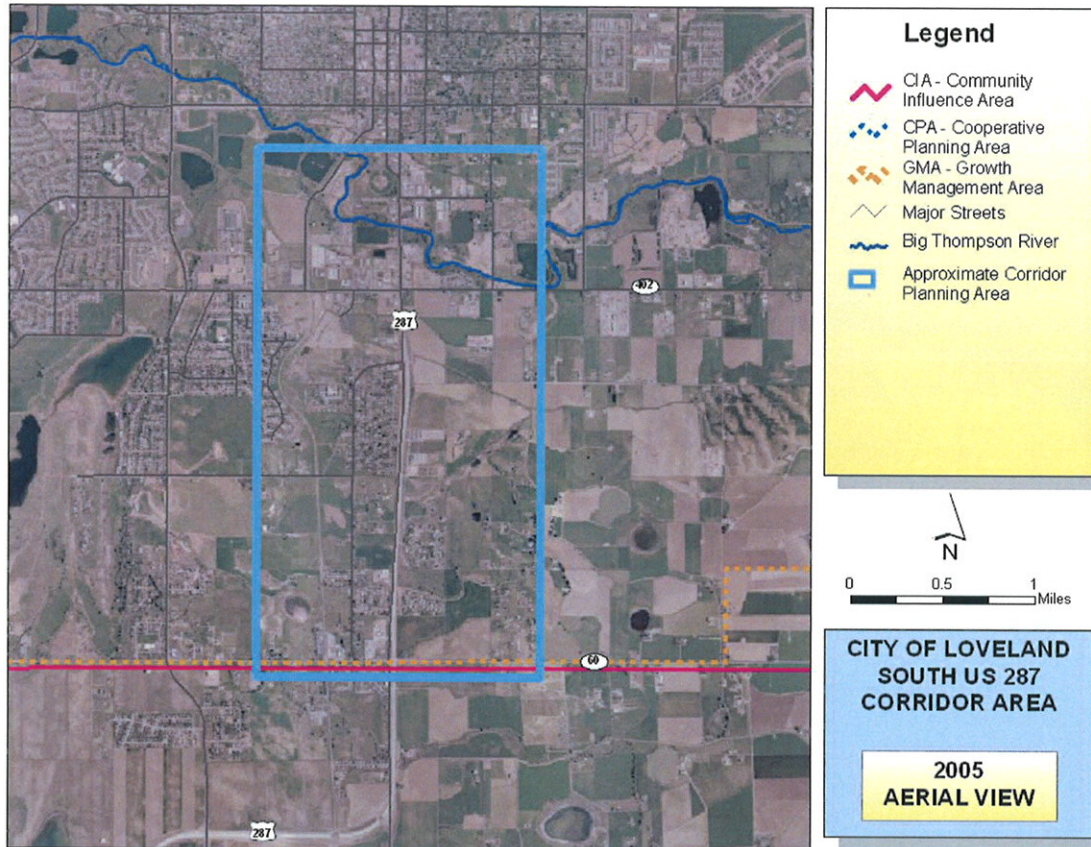
An enclave of industrial development is located on the east side of U.S. 287 across from Barnes Park. This area is currently under County jurisdiction and includes a number of small warehouse and light industrial facilities.

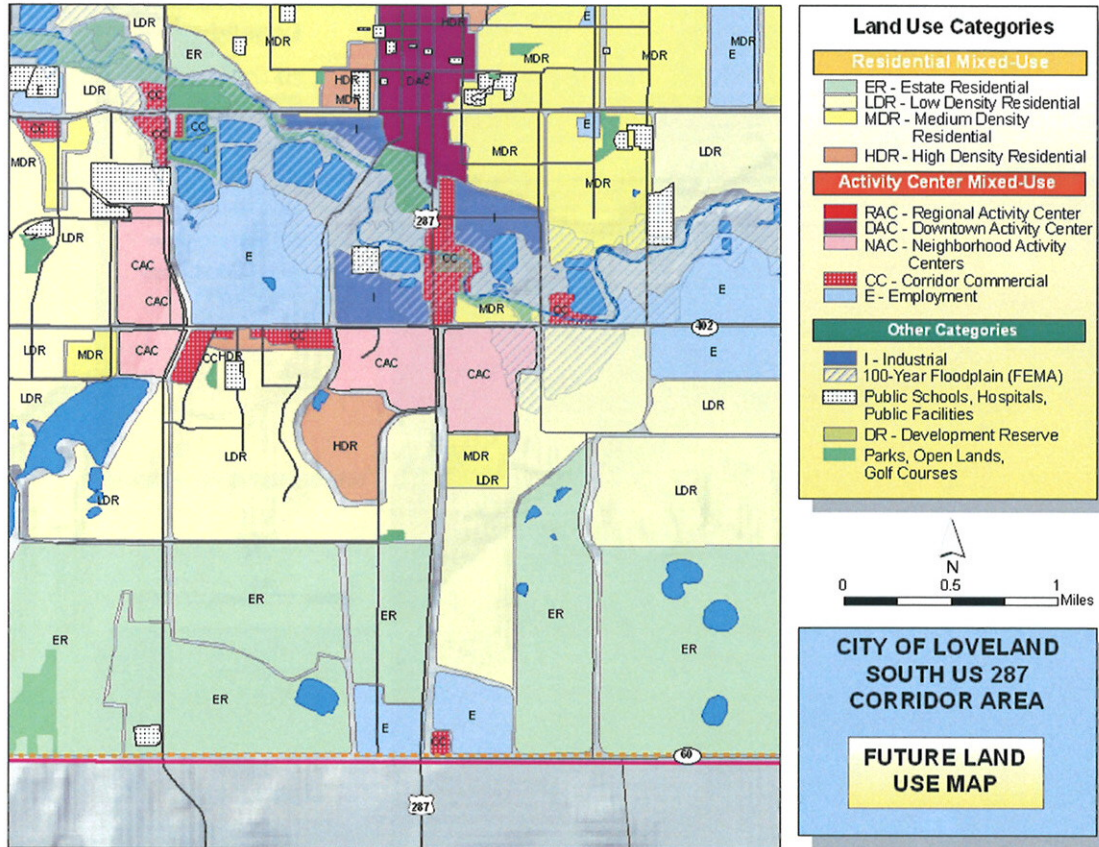
Loveland Technology Park is located at northwest corner of Hwy. 60 and U.S. 287. This development includes two office buildings housing technology and back-office support services and is approximately 50 percent developed. Concepts for future expansion include the provision of commercial services to support the employment base at this location and the Campion neighborhood to the west.



Former Larimer County Fairgrounds

Road Network: South of Hwy. 402, U.S. 287 is a limited access highway. Additional direct driveway access to development sites will not be permitted in this area. The U.S. 287 "by-pass" project south of Hwy 60 is nearing completion. Completion of the "by-pass" will provide a continuous limited access highway link to Boulder County, improving regional access for this area of the City.





2030 Transportation Plan Map
(upcoming)

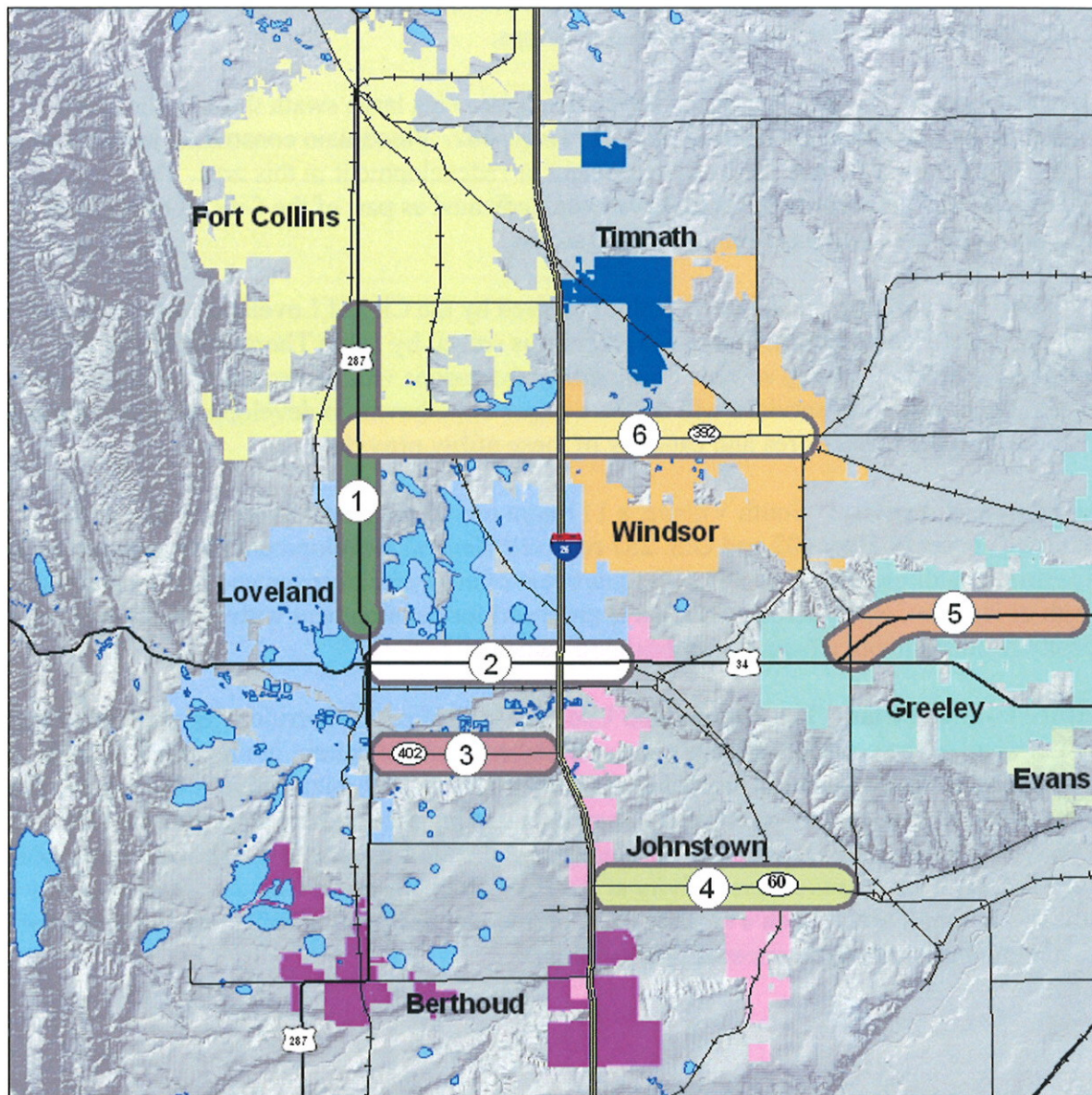
The 2020 Transportation Plan currently shows a future arterial road connection south of U.S. 287. Aside from this road, no other major roads are proposed in this area of the City. The local road network will develop over time as the area develops.

Environmental: The Big Thompson River floodplain cuts large swath through the northern portion of the corridor in the vicinity north of Hwy. 402. Floodplain constraints in this area are a major consideration for any future development or redevelopment in this area. Parcels on the east side of U.S. 287 adjacent to the river have been dedicated as part of the City's Open Lands program. This area will have limited public access.

Utilities: The northern end of the corridor is served by the City of Loveland with water and sanitary sewer. The southern end of the corridor is served by Little Thompson Water and Berthoud/Loveland sanitary sewer. While utility extensions will be necessary as development occurs, the provision of services will not be a major impediment to development since the entire area is within the service area and capacity of these utility providers.

Development Activity: South Village, a 111-acre mixed-use development located at the southeast corner of Hwy 402 and U.S. 287 received General Development Plan approval in 2003. This project will include up to 305,000 square feet of commercial space and 550 residential units. North of Hwy 60, an 83-acre annexation is proposed for development with 1706 units of mixed-density residential and a 6-acre neighborhood center.

Future land Use Plan: The Future Land Use Plan indicates CC-Corridor Commercial at the northern end of the corridor reflecting the established land use pattern in that area. A large Community Activity Center is located at the Hwy 402/U.S. 287 intersection reflecting the future status of this area as one of two mixed-use centers serving the southern region of the City. South of Hwy 402, LDR-Low Density Residential and ER-Estate Residential are shown, transitioning into a second node of mixed-use activity at the Hwy 60 intersection. This mixed-use activity node indicates E-Employment with a smaller CC-Commercial designation reflecting the desire for a greater emphasis on employment at this location.



CDOT Corridor Study & Completion Date

- ① US 287 Environmental Overview Study - March 2006
- ② US 34 Environmental Assessment - Summer 2007
- ③ SH 402 Environmental Assessment - Spring 2003
- ④ SH 60 Environmental Overview Study - April 2006
- ⑤ US 34 Business Environmental Assmt - October 2005
- ⑥ SH 392 Environmental Overview Study - Winter 2005

Colorado
Dept. of
Transportation

Recent &
Ongoing
Corridor Studies

4.5 IMPLEMENTATION

Part I. Summary of Action Plan Recommendations

Redevelopment/Infill Action Plan Recommendations

- **Standards and Regulations:** Many of the City's ACF and engineering standards were developed to fit "green field" conditions. These standards are often problematic when applied downtown and to older commercial corridors. In these areas open spaces are limited, buildings are placed close together and very near the right-of-way and access constraints do not permit strict compliance with access standards. Such regulations can become significant impediments to redevelopment projects. An evaluation of such standards and regulations is recommended to remove potential barriers to redevelopment.
- **Redevelopment Guidelines:** Guidelines should encourage upgrading existing commercial sites. These guidelines could be included as part of the updated Community Design Element of the Comprehensive Plan. Redevelopment considerations should also be incorporated as part of updates to Title 18 and Site Development Performance Standards and Guidelines.
- **Specific Corridor Plans:** Consideration of specific corridors plans for priority corridors is recommended. These plans would establish more specific design objectives and development standards, similar to the west U.S. 34 Corridor Plan. Such plans could also include recommendations for streetscape and entry beautification programs. Also, such plans can evaluate opportunities such as deepening commercial sites through acquisition of adjacent residential lots to create more viable corridor redevelopment sites.
- **Annexation:** Work should continued with land owners to annex unincorporated portions of major corridors into the City. Priorities here include the south U.S. 287 area and Hwy. 402.
- **Downtown and Core Neighborhoods:**
 - **Strategic Planning and Redevelopment Opportunities:** Strategic planning for the downtown undertaken during 2001 identified redevelopment and infill opportunities, many which are underway, such as redevelopment of the former Walgreens block and renovation of downtown buildings. It would be timely to identify "second tier" redevelopment opportunities and a continuing strategy to maintain the current momentum.
 - **Neighborhood Preservation:** Most neighborhoods are in healthy condition, although certain areas are in need of attention. In some cases, acquisition and assemblage of parcels for redevelopment may be appropriate. Infill design standards should be developed to ensure that infill projects do not negatively impact neighborhoods. Other measures may include a coordinated code administration program.
 - **Fairgrounds:** As plans for reuse of the fairgrounds are developed, consideration should be given to establishing a physical pedestrian linkage to the downtown area to maximize the benefits from this project.
 - **Streetscape:** Demonstration streetscape improvements were completed in the blocks of Cleveland Avenue from 4th Street to 6th Street. Continuation of a streetscape program is recommended and establishment of an area to serve as a permanent staging area for special events such as the Corn Roast and arts and cultural activities.
 - **Public Parking:** Efforts to better manage public parking facilities and plan for the expansion of downtown parking should continue as redevelopment occurs and demand for parking increases.

Part II. Implementation Schedule

Action Item	Status	Plan Ref.	Start Year	Lead Agency	Partners	Compl. Year	Staff Priority
Prepare Consolidated Community Design Element		Obj 1.1.1	2007	CSP	CP	2007	√
Prepare Infill & Redevelopment Standards		Goal 3.1	2007	CSP		2007	√
Redevelopment Opportunities Assessment (Corridors; Retail & Comm. Areas)		Obj 3.1.4	2007	CSP		2007	√
Create 5-yr schedule to Create/Update Corridor Plans (US 287, Hwy 34 West, Hwy 34 East, Hwy 402)		Obj 3.3.2	2007	CSP		2010	√
West U.S. 34 Corridor Plan		Strategy 3.3.2.3	2007	CSP	TA, PW, CP, NA, ED	2008	√
Downtown Area Plan <ul style="list-style-type: none"> 2nd Tier Redevpmt Opportunities Evaluation of ACF & Eng. standards and regulations Urban Renewal Assessment (Expansion or Additional Areas) Redevelopment Incentives Cultural District Planning 		Obj 3.3.1 Obj 3.2.3 Strategy 3.3.1.2	2007	CSP	CS/DLA	2007	√
Update Zoning Code <ul style="list-style-type: none"> Site Development Performance Stands. & Guidelines Revise Medium Density Residential Zones Adopt ER Zone 			2007	CSP		Ongoing	√
Build-out Analysis		Obj. 9.1.3	2007	CSP	DS/CP/GI S	Ongoing	√

Propose changes to Land Use Plan Map: <ul style="list-style-type: none"> Based on build-out analysis To align with Transportation Analysis Zones 		Strategy 9.1.3.3 Obj 10B.1.3	2007	CSP	CP	Ongoing	√
Prepare Housing Plan <ul style="list-style-type: none"> Assess Regulatory Barriers Assess CEF's to determine equity by unit size Assess Current & Potential Incentives 		Obj 2.1.1 Strat 2.2.1.4		AHC/HS	CSP		
Create & Have Larimer Co Adopt Supplemental Regulations for GMA Overlay		Obj 12.3.8		CSP			
East U.S. 34 Corridor Plan Hwy. 402 Corridor Plan South US 287 Corridor Plan North US 287 Corridor Plan		Strategy 3.3.2.3		CSP	TA, PW, CP, NA, ED		
Brownfields Opportunities Assessment		Obj 3.1.3		CSP			
Neighborhood Stabilization Program		Strategy 3.3.4.2		CSP	CP/Bldg/ED/PW		
Transit-Oriented Development Plan		Obj 3.3.5		CSP			
Assess the Integration of Sustainable Resource Use into Plan Documents <ul style="list-style-type: none"> Energy conservation Green building Water conservation Recycling Procurement Builder/Developer education 	Water cons. proposal underway Peak (energy) demand management program underway Recycling program exists	Obj 9.1.4		Various			

Update Growth Management Component		Obj 12.1.1		CSP			
Update Plan for the Region Between Loveland and Fort Collins		Obj 12.2.1		CSP			
Explore Additional Buffer Planning Opportunities with Other Communities		Obj 12.2.1		CSP			
Ensure Adoption of Unadopted Comp Plan Elements		Obj 15.2.2		CSP			
Establish Core Community Indicators & Data Gathering Capacity (in cooperation with COMPASS)		Obj 15.2.1, 15.2.2		CSP			
Pedestrian/Bike Network Plan <ul style="list-style-type: none"> • Design Guidelines • Safe Routes to School/other Grants • Planning component of trails system (link with P&R, Transportation components) 	Bike/Ped Plan scheduled for 2007 (Public Works)	Goal 10B.4; Strategy 10B.6.1.4 Obj 16.1.1		PW; CSP; PR; R2J			

Appendix A: Relationship to Other Plans and Reference Guide

The Land Use Plan works in conjunction with a variety of adopted plans, some of which are listed below.

- ***General Plan Organizational Framework:*** This section of the Comprehensive Plan was prepared and adopted in 2005, and contains the community's Guiding Principles, Goals and Objectives that guide the elements of the Comprehensive Plan. The Organizational Framework replaced the *Agenda for the 90s and Beyond* approved by City Council in 2002.
- ***Plan for the Region Between Fort Collins and Loveland, 1995:*** This Plan was prepared by a multi-disciplinary team of consultants and staff from Larimer County, the City of Fort Collins and the City of Loveland, with assistance from a citizens task force. It was adopted by the Larimer County Planning Commission in April 1995, and was also adopted by the Cities of Loveland and Fort Collins. The Plan received a Governor's Award for Smart Growth and Development in 1995. The purpose of the Plan is to determine the future character and vision for the area between Fort Collins and Loveland. Beginning with the goal of maintaining separation between the two communities, the Plan studies existing land use and natural resources and identifies opportunities and strategies for creating open space and buffers. The plan area includes the unincorporated rural area between the two communities as well as future urban areas for the two cities.

The *Plan for the Region Between Fort Collins and Loveland* is made part of the Loveland Land Use Plan as a specific area plan, and its goals, sub-area descriptions and implementation strategies will continue to be used as a guide to land use decisions by the City for the area. The City, County and Fort Collins have all made substantial progress toward open space preservation within the separator area since 1995. A program for the acquisition of open space within this area continues.

- ***2030 Transportation Plan:*** The 2030 Transportation Plan includes the future road network and should be closely coordinated with any planning activity. Specific objectives and guidelines related to planning for the preservation and development of the downtown pedestrian circulation system are included in this document.
- ***City of Loveland Open Lands Plan, March 2003:*** This plan establishes priorities and planning techniques applicable in priority open space areas such as the Big Thompson River Corridor, Ryan's Gulch area and the Hogback or First Ridge.
- ***Parks and Recreation Master Plan:*** This Plan establishes public park and trail development priorities and locations.
- ***I-25 Corridor Plan, 2001:*** The I-25 Corridor Plan was adopted to guide transportation improvements in the interstate corridor that extends from south of Johnstown to north of Fort Collins. This plan was prepared with participation by CDOT, Larimer and Weld Counties and each of the communities within the corridor. The plan also includes design guidelines for development within the corridor.

- **Chapter 5.0 1994 Comprehensive Master Plan Community Design Element:** This element provides specific design objectives and guidelines applicable to community and neighborhood design elements.
- **U.S. Highway 34 Corridor Study, 1993:** This plan includes design guidelines applicable to development proposals within the corridor.
- **Major Arterial Corridors Design Guidelines, 1997:** This document establishes design guidelines for the US 34, State Hwy. 402, U.S. 287, Taft and Wilson Avenue corridors.
- **In the Nature of Things Loveland's Natural Areas, 1996:** This study provides a general inventory and ranking of natural areas used as the basis of required environmental reports and priorities for land acquisition set forth in the Open Lands Plan.
- **Big Thompson River Corridor Study, 1997:** This study provides a detailed environmental study of the corridor.
- **Larimer County/Loveland Intergovernmental Agreement for Growth Management, August 2003:** This agreement establishes agreement between the City and County regarding annexation within the City's Growth Management Area.
- **Airport Master Plan, July 2005:** This plan updates the previous 1993 Airport Master Plan. It has been prepared to assess and direct improvements that will likely be necessary to accommodate future aviation needs. The Airport Master Plan Update is not a decision document on whether or not an improvement will be built; it is a planning tool that indicates how the land at the Airport might best be used in consideration of anticipated future demand.

The Loveland City Council adopted associated maps contained within the Airport Plan, including the Airport Influence Zones, but instructed the Airport to prepare a master utility plan and transportation analysis in order to address whether the proposed plan would interfere with, or prevent, the provision of any of the area's existing, planned, or previously committed services; or whether the proposed plan would interfere with, or prevent, the provision of any of the area's existing or planned transportation system services as contemplated by the 2020 Transportation Plan. The master utility plan and transportation analysis shall be considered as a future amendment to the 2006 Airport Master Plan.

- **Section 3 Community Vision:** Compiled over the course of several community visioning workshops and outreach activities held in 2004-2005, The 2030 Vision Narrative presents a somewhat "idealized" vision of the Loveland community's future.
- **Public Participation Plan:** Adopted at the same time as the 2007 Land Use Plan update, this plan is a guide document for public participation activities carried out for plan updates and major construction projects.

- **Implementation Tool Appendix:** Also adopted with the 2007 Land Use Plan update, this appendix is a reference document that explains in depth the various implementation tools (programs and policies) available to Local Government to implement its plans.

*Documents are available for review at
the City of Loveland Community and
Strategic Planning Division*

Table 1. Table of Planning Documents				
Amendments / Revisions	Prepared	City Council Adoption	Resolution Number	Formally Adopted as Part of Comp Plan?
1994 Comprehensive Master Plan Phase I	1994	18-Oct-94	#R-87-94	Yes
2020 Transportation Plan	2000	16-May-00	#R-39-2000	Yes
Three Mile Plan	N/A	17-Dec-02	#R-100-2002	No
ACF Amendment - Fire & Rescue : Appendix A of Chapter 16.41	1998	17-Feb-98	Ord. #4320 #R-26-98	No
ACF Amendment - Fire & Rescue : Appendix A of Chapter 16.41	1998	7-Jul-98	#R-62-98	No
ACF Amendment - Fire revised Fire Protection Master Plan revised	1997	1-Jul-97	Ord. #4278 #R-35-97	No
Adequate Community Facilities (ACF) - Police, Fire, & Transportation	1996	16-Apr-96	Ord. #4170 #R-42-96	No
Community Design Elements	1996	19-Mar-96	#R-34-96	Yes
Community Vision	2005	6-Sep-05	#R-71-2005	Yes
Consolidated Plan	2005	N/A	N/A	No
Contiguity Clause - Section 4.1 Amendment	1996	19-Mar-96	#R-36-96	Yes
Contiguity Clause - Section 4.1 Amendment	1997	20-May-97	#R-30-97	Yes
Economic Development Plan	2002	N/A	N/A	No

Economic Vitality Plan	1996	1/7/1997 (Approved)	#R-4-97	No
Facilities Master Plan	2003	N/A	N/A	No
Feathering of Density Clause - Section 4.9 Amendment	1996	19-Mar-96	#R-35-96	Yes
Fire Protection Master Plan	1995	19-Dec-95	#R-101-95	Yes
Fire Protection Master Plan Amendment	1997	9-Jul-97	#R-35-97	Yes
Fort Collins-Loveland Municipal Airport Master Plan	2006	11-Jul- 2006	#R-__-06	Partially
General Plan Organizational Framework	2005	05-09-2005	#R-71-2005	Yes
Growth Management Plan Revision	2001	3-Apr-01	#R-31-2001	Yes
I-25 Corridor Plan	2001	8/8/2001	#R-65-2001	Yes
Larimer County's Application Seeking Inclusion of Areas within the Existing Enterprise Zone	1996	20-Aug-96	#R-70-96	N/A
Historic Preservation Plan	2002	17-Sep-02 (Approved)	#R-39-2002	No
Loveland Public Library Master Plan	2002	N/A	N/A	No
Major Arterial Corridors Design Guidelines	1997	16-Sep-97	#R-52-97	Yes
Open Lands Plan	2003	2/18/2003	#R-18-2003	Yes
Parks and Recreation Master Plan	2001	16-Oct- 2001	#R-100-2001	Yes
Plan for the Region Between Fort Collins and Loveland	1995	5-Jul-95	#R-42-95	Yes
Process and Procedures for Amending the 1994 Comprehensive Master Plan	2003	18-Feb-03	#R-19-2003	Yes
Public Participation Plan	2007			Yes
Recreation and Tourism Element – Compliance with State Law by recognizing Parks Plan as Recreation and Tourism Element	N/A	4-Feb-2003	#R-9-2003	Yes

Revision to 2020 Street Plan Map	2001	16-Oct-01	#R-101-2001	Yes
Section 4.1 Growth Management Plan Amendment	2000	2-May-00	#R-25-2000	Yes
Section 4.10 Land Use Plan Amendment	2000	2-May-00	#R-26-2000	Yes
Three Mile Plan	N/A	17-Dec-02	#R-100-2002	Yes
Water, Waste Water, Electric & Stormwater Utilities Functional Master Plans ACF Amendment – Water & Power added	1997	15-Jul-97	#R-39-97 ORD #4284 #R-40-97	Yes
Urban Renewal Plan	2002	01-Oct-2002	#R-74-2002	No
US 34 Corridor Plan	1993			No

Table 2. Planning-Related Intergovernmental Agreements

Amendments / Revisions	City Council Adoption	Resolution Number	Parties/ Entities Involved	Exp. Date
Annexation Agreement	11-25-03	#2003-0147845	Larimer County	
Concerning Cooperative Planning within Fossil Creek Study Area	8-4-99	#R-67-99	Fort Collins	
Concerning fees in lieu of land dedication for school properties (amended 4-17-01)	12-19-95 (amended 805-96; 4-17-01)	#R-105-95 #R-64-96	Thompson R2-J School District	
Concerning Northern Colorado Regional Communication Network	12-21-99	#R-122-99	Poudre R-1 School District, Northern Colorado Water Conservancy District	
Creating Larimer/Loveland Building Authority	11-7-00	#R-96-00	Larimer County	
Creating Special Improvement District #1980-1	3-18-80	#R-118-80		
Exchange of services and/or resources among cities and counties of Northern Front Range	3-3-98	#R-23-98	Berthoud, Eaton, Estes Park, Fort Collins, Johnstown, Kersey, Milliken, Timnath, Wellington, Windsor, Larimer, Weld	
For regional cooperation on planning for urban development	1-9-97			
Managing and planning urban growth patterns in Northern Colorado	12-2-97	#R-70-97	Berthoud, Estes Park, Ft. Collins, Larimer County, Windsor	
Relating to Growth Management	11-18-03	#R-109-2003	Berthoud, Estes Park, Ft. Collins, Larimer County, Windsor	
Relating to IGA for Growth Management Area	1-28-04	#2004-0009110	Fort Collins	

To develop an access control plan for HWY 34	5-6-03	#R-42-2003	Evans, Greeley, Johnstown, Kersey, Larimer, Weld, Windsor	
Poudre-Big Thompson Rivers Legacy Grant Project	9-15-98	#R-79-98	Great Outdoors Colorado, ten partner entities	
Boyd Lake Northwest Open Space Acquisition Project	6-15-99	#R-79-98	Great Outdoors Colorado	

Table 3. Amendments to the Land Use Plan Map and Categories

Resolution No.	Date	Name	General Location	Amendment description		
R-38-2000	5/2/2000	Minor technical corrections to 4.1 and 4.10				
R-26-2000	5/2/2000	Land Use Plan Amendment				
R-30-2002	4/16/2002	GMA			to	ER
R-62-2002	8/20/2002	Thornburg/Hamilton	SE I-25 Frontage	I	to	E
R-73-2002	9/17/2002	Staples Farm	N. Taft	MDR	to	ER
R-88-2002	10/15/2002	Amendment of GMA	Giuliano; Mariana Butte; Old Fairgrounds; Southeastern GMA			
R-93-2002	11/5/2002	Airport Influence Areas/Critical Zones				
R-112-2002	12/17/2002	Annexation of Enclaves				
R-19-2003	2/18/2003	New Procedures for Amending The 1994 Comprehensive Plan				
R-20-2003	3/4/2003	Thompson First Subdivision		P	to	CC
R-125-2003	12/16/2003		402 & Boise	Flood plain	to	E
R-124-2003	12/16/2003	Employment Definition				
R-43-2004	5/18/2004	Koldeway Industrial Addition		I	to	E
R-43-2004	5/18/2004	Koldeway Industrial First Subdivision		ER	to	MDR
R-52-2004	7/6/2004		287 & 1/2 mi. S of 402	NAC	to	MDR
R-52-2004	7/6/2004		287 & 1/2 mi. S of 402	LDR	to	MDR
R-52-2004	7/6/2004		287 & 1/2 mi. S of 402	ER	to	LDR
R-85-2004	9/21/2004		W of Madison Ave, S of East 8th	MDR	to	E
R-94-2005	11/15/2005		SE & SW corner of HW 34 and Rossum Dr.	LDR	to	CC
R-78-2005	9/20/2005	Change definition of Estate Residential				
R-19-2006	2/21/2006		E side of N. Wilson, 600' S of Eisenhower	CC	to	LDR
R-22-2006	2/7/2006		E side of N. Wilson, 600' S of Eisenhower	CC	to	LDR
R-34-2006	3/7/2006		E of Allendale 3rd and N of US HWY 34 (17 ac)	HDR	to	CC
R-24-2006	2/7/2006	Lee Farm Addition		NAC	to	MDR
R-35-2006	6/13/2006	Millenium Consolidation parcels A,C, and D		E	to	MDR

R-35-2006	6/13/2006	Millenium Consolidation parcels A,C, and D		ER	to	LDR
R-35-2006	6/13/2006	Millenium Consolidation parcels A,C, and D		LDR	to	MDR
R-35-2006	6/13/2006	Millenium Consolidation parcels A,C, and D		E	to	HDR
R-35-2006	6/13/2006	Millenium Consolidation parcels A,C, and D		LDR	to	E
R-73-2006	8/1/2006	W Side of N. Taft from Chubbuck Ditch to Little Barnes Ditch		LDR	to	MDR

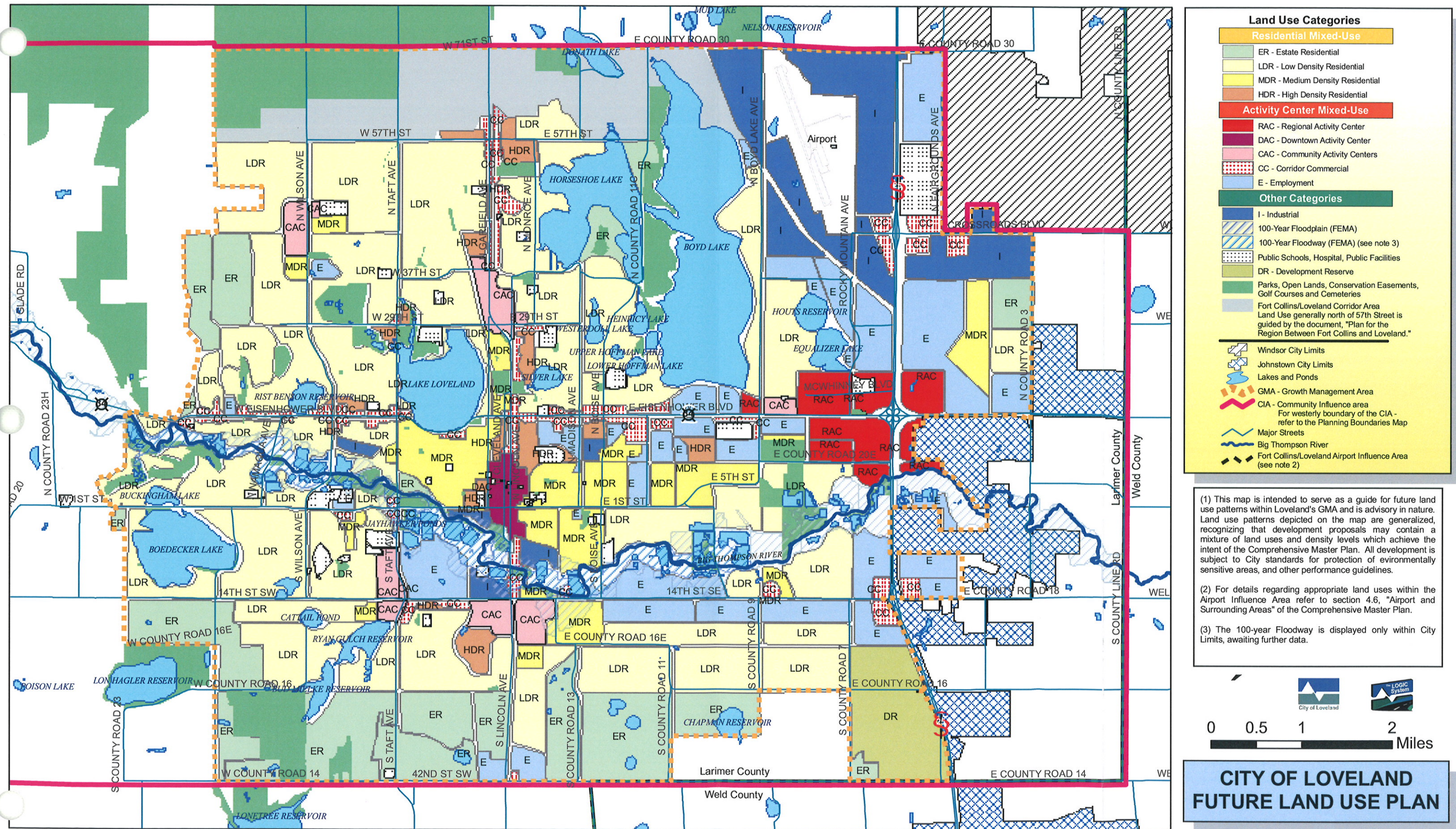


Table LU-1: Activity Center/Mixed-Use Category Descriptions

	CC- Corridor Commercial	E-Employment	NC-Neighborhood Center	CAC-Community Activity Center	DAC-Downtown Activity Center	RAC-Regional Activity Center
Purpose	<ul style="list-style-type: none"> • Wide range of commercial and office uses • Follows linear pattern of older strip commercial • Potential for redevelopment 	<ul style="list-style-type: none"> • Campus-type (1) setting for employment & related commercial(2) 	<ul style="list-style-type: none"> • Serves daily convenience needs of surrounding neighborhood • Possible social and recreational focal point 	<ul style="list-style-type: none"> • Serves shopping needs of the community sub-area • Typically anchored by grocery store • Potential for employment and civic uses 	<ul style="list-style-type: none"> • Downtown business area • Encourage preservation of historic character, redevelopment and infill • Encourage diverse mix of land use, including arts-related uses 	<ul style="list-style-type: none"> • Serves regional commercial, service and employment uses
Service/ Market Area	<ul style="list-style-type: none"> • Varies – may serve local and regional traffic 	<ul style="list-style-type: none"> • Intended to meet both community and regional employment needs 	<ul style="list-style-type: none"> • Primary service area is 1/2 mile walking distance 	<ul style="list-style-type: none"> • Primary market area is 3 miles – may serve a larger area 	<ul style="list-style-type: none"> • Serves the entire community and beyond 	<ul style="list-style-type: none"> • Serves regional market area
“Core” Non-Residential Area	<ul style="list-style-type: none"> • Varies - typically shallow strip along major portions of existing arterial roads 	<ul style="list-style-type: none"> • Up to 300 acres or larger 	<ul style="list-style-type: none"> • Up to 6 acres 	<ul style="list-style-type: none"> • 10 to 30 acres 	<ul style="list-style-type: none"> • 40 acres 	<ul style="list-style-type: none"> • up to 300 acres or larger
Access and Location	<ul style="list-style-type: none"> • Predominantly auto dependent • Located along major transportation corridors • Connections encouraged thru the use of shared/cross access • Discouraged where it worsens traffic problems 	<ul style="list-style-type: none"> • Predominantly auto dependent • Plan for multi-modal access • Located along, or with access to, major corridors • May be adjacent to residential neighborhoods where appropriate 	<ul style="list-style-type: none"> • Designed to encourage walking and biking access directly to and from adjacent neighborhood • Located along and/or with access to minor arterials and/or collectors 	<ul style="list-style-type: none"> • Primarily auto access • Emphasis on pedestrian connections to neighborhood • Transit and trail access 	<ul style="list-style-type: none"> • Both auto and pedestrian-access emphasized - pedestrian circulation emphasized in "core" • Major transit hub and accessible by community trail system • Alleys provide alternate access 	<ul style="list-style-type: none"> • Accessible by all modes of travel • Dependant on easy highway access to serve regional market • Potential transit stops/transit points
Typical Non-residential Uses	Retail, low-rise office, public/quasi-public uses, entertainment (e.g. restaurants, theatres), hotels/motels, medical facilities, place of worship, senior or community center, middle/high schools; park and ride facilities	Mix of low- to medium-rise office, light-industrial, retail, lodging and other complementary uses	Convenience grocery, small drug store, insurance offices, gift shop, deli, branches of public/quasi-public uses (post office, library, etc.) day care center, elementary school	Low-rise office, public/quasi-public uses, entertainment (restaurants, theatres, etc.), hotels/motels, medical facilities, place of worship, senior or community center, middle/ high schools; park and ride facilities	Office; hotels; major cultural and entertainment uses; regional & corporate offices in a urban-style setting; retail and services; technology/light manufacturing; higher education facilities; major public/quasi-public	Mid & high-rise office; hotels; major cultural and entertainment; regional & corporate offices, retail and service; technology/light manufacturing; higher education; transit facility; major public/quasi-public
Development Guidelines	<ul style="list-style-type: none"> • Upgrade existing streetscape and building appearance, • Screen existing parking lots • Improve circulation and access control 	<ul style="list-style-type: none"> • "Campus-type" setting with unified building design, open space, viewshed protection • Encourage high-quality architecture 	<ul style="list-style-type: none"> • Blends with surrounding context • Dispersed parking • Attractive pedestrian circulation • May include place for neighborhood activities 	<ul style="list-style-type: none"> • Blends with surrounding context • Dispersed parking • Attractive pedestrian circulation • Public plaza/open space should be provided within "core" • Links to park/open space 	<ul style="list-style-type: none"> • Emphasis on streetscape • Outdoor seating encouraged in conjunction with plazas • Preserve historic character 	<ul style="list-style-type: none"> • Larger scale plazas and paths • Encourage high-quality architecture
Residential Component						
General	<ul style="list-style-type: none"> • As may be permitted by underlying zoning (e.g. B-Developing Business permits single and multiple family) • Mixed-use/residential may be most appropriate uses 	<ul style="list-style-type: none"> • Up to 20% of total employment land area may be residential • Mixed-use³ residential within core 	<ul style="list-style-type: none"> • N/A (These centers will typically be subcomponents of a larger residential development) • Mixed-use³ residential encouraged where appropriate 	<ul style="list-style-type: none"> • Single-family attached/detached and multi-family adjacent to core • Mixed-use³ residential w/in core • See note (4) for projects exceeding 50% residential land area 	<ul style="list-style-type: none"> • Single-family attached/detached, multifamily and mixed-use³ residential throughout 	<ul style="list-style-type: none"> • Up to 50% of total land area may be residential • Medium to high density residential
Density	As permitted by zoning (see below)	Up to 16 du/acre (Plus mixed-use ³ residential)	N/A (Mixed-use ³ residential permitted)	Up to 16 du/acre (Plus mixed-use ³ residential)	Up to 25 du/acre (Plus mixed-use ³ residential)	Up to 16 du/ac (Plus mixed-use ³ residential)
Examples	US 34 and US 287 corridors	Woodward Governor, Interlocken, Centerra office	Meadowview Village Center in Longmont	Thompson Valley Center Center Place, Greeley	Downtown Loveland	Centerra (Millennium GDP)
Alignment with Zoning	<ul style="list-style-type: none"> • B-Developing Business • Planned Development (PUD) • MAC-Mixed-use Activity Center 	<ul style="list-style-type: none"> • B-Developing Business • I-Industrial • Planned Development (PUD) • E-Employment District 	<ul style="list-style-type: none"> • B-Developing Business • R3e-Established High Density • MAC-Mixed-use Activity Center 	<ul style="list-style-type: none"> • Planned Development (PUD) • MAC-Mixed-use Activity Center 	<ul style="list-style-type: none"> • BE-Established Business District 	<ul style="list-style-type: none"> • MAC-Mixed-use Activity Center • Planned Development (PUD)

Notes:

1.) See definition of "Campus-type" on Page 19.

2.) A proposed development plan that does not contain office or light-industrial uses may be found consistent with the Employment Center category if, in the vicinity of the proposed development plan, a) office or light-industrial uses exist or the zoning for such uses is in place such that these uses or zoning constitute the predominant land uses. "Campus-type" means development that emphasizes open space and the preservation of natural features that may serve as buffers and transitions to adjacent area(s).

3.) Mixed-use residential means residential in the same building with non-residential uses, such as residential at ground level with non-residential or above a non-residential use. In the case of mixed-use above a ground floor non-residential use, the mixed-use residential does not count toward the area limits on residential uses within total activity center area.

4.) For projects exceeding 50 percent residential land area, applicant must demonstrate that sufficient land area is devoted to commercial use within the project, or within the vicinity of the project, to meet future commercial needs and demands.

Table LU-2: Residential Category Descriptions

	ER-Estate Residential	LDR-Low Density Residential	MDR-Medium Density Residential	HDR-High Density Residential
Description/Purpose	<ul style="list-style-type: none">Intended to provide for lower residential densities and larger lot areas than other residential land use categoriesFrequently located near or adjacent to significant natural features and established open spaces at the outer limits of the City’s GMA Boundary	<ul style="list-style-type: none">Can consist of a variety of housing types, but includes primarily detached single family residential housingMakes up the largest residential component (geographically) of the City’s Land Use PlanThe majority of newly developing neighborhoods fall into this category	<ul style="list-style-type: none">Provides for a variety of housing types at a moderate densityCompatible with older neighborhoods around the center of the cityNew neighborhoods and infill development may include mixed-type-housing with townhome style units	<ul style="list-style-type: none">Primarily attached higher density housing including multifamily housingTypically located in close proximity to employment centers, commercial services to provide land use transition and “worker” housing options near employment
Target Average Gross Density	<ul style="list-style-type: none">Up to a maximum of 2 units per acre.For sites with significant undevelopable natural features, gross density below the maximum range should be considered (see clustering guidelines¹)	<ul style="list-style-type: none">2 to 4 units per acre	<ul style="list-style-type: none">4 to 10 units per acre	<ul style="list-style-type: none">10 to 22 units per acre
Primary Housing Types	<ul style="list-style-type: none">Single family detached homes.	<ul style="list-style-type: none">Primarily single-family detached, but may include single-family attached homes, townhomes, condominiums, and apartments	<ul style="list-style-type: none">Single-family detached homes, including patio and cottage-type developments;Single-family attached homes including townhomes and duplexes;Four-plexes and eight-plexes;Condominiums and apartments compatible with MDR character or mixed with other housing types.	<ul style="list-style-type: none">May include single-family detached homes, single-family attached homes, townhomes, condominiums, and apartments.
Other Uses	<ul style="list-style-type: none">Churches, schools, parks, recreation, open space and civic uses are acceptable complementary uses.	<ul style="list-style-type: none">Churches, schools, parks, recreation, open space and civic uses are acceptable complementary uses.	<ul style="list-style-type: none">Churches, schools, parks, recreation, open space and civic uses are acceptable complementary uses.	<ul style="list-style-type: none">Churches, schools, parks, recreation, open space and civic uses are acceptable complementary uses.
Clustering	<ul style="list-style-type: none">Residential clusters should be planned and located to protect natural features of the site and surrounding area and established neighborhoods¹			
Commercial Component				
General	<ul style="list-style-type: none">Convenience commercial meeting criteria for Neighborhood Center (see Neighborhood Center Table LU-1)Should be approximately ¾ of a mile from the nearest similar commercial use			
Examples	<ul style="list-style-type: none">Horseshoe Lake First Subdivision	<ul style="list-style-type: none">Mariana Butte	<ul style="list-style-type: none">Established neighborhoods around downtown LovelandNewer townhome developments along Taft Ave.; High Plains Village (Centerra)Copper10 Homes on Boise and 1st	<ul style="list-style-type: none">Apartment and condominium developments
Alignment with Zoning	<ul style="list-style-type: none">Planned Development (PUD)New ER-Estate Residential District	<ul style="list-style-type: none">R1-Low Density ResidentialR1e-Established Low Density ResidentialPlanned Development (PUD)	<ul style="list-style-type: none">R2-Two Family ResidentialR3e-Established High Density ResidentialPlanned Development (PUD)	<ul style="list-style-type: none">R3-Developing High Density ResidentialR3e-Established High Density ResidentialPlanned Development (PUD)

- Notes:**
- 1.) Development areas should be planned to protect views of distinctive natural features, such as ridge lines, open space separators, mountain backdrop, major bodies of water, wildlife habitat and other smaller natural areas and parks. Considerations in planning development clusters should include, but not be limited to:
- Where views of buildings would disrupt the view or value of established open space or natural features, buildings should be integrated into the existing natural character through sensitive location and design of structures and associated improvements. For example, visual impacts can be reduced and better view protection provided through careful building placement and consideration of building heights, building bulk, and separations between buildings; Also, variations in rooflines and building mass can be used to maintain the visual integrity of the landscape and minimize large expanses of flat planes in highly visible locations.
 - Lower densities should be planned contiguous to existing single family developments or natural features, with densities graduated in intensity away from the adjacent development or natural feature.
 - Buffers and setbacks should be increased where the adjoining density is lower or where the adjoining use is a public area or significant natural feature.
 - Substantial grade differences between developments should be considered and impacts mitigated with building height limitations. Buildings should be clustered and locating along contour lines in a manner that minimizes disturbance of slopes and protects views of the natural feature.

Table LU-3: Other Category Descriptions					Overlay Categories	
	I-Industrial	DR-Development Reserve	Loveland/Fort Collins Corridor Area	Open Space/Parks	Airport Influence Area	Floodplain
Description/Purpose	This category is intended to provide locations for a wide range of industrial uses and related services, where appropriate. Uses include, but are not limited to, manufacturing, wholesale, warehousing and commercial uses compatible with industrial locations, such as offices, restaurants and auto service.	This category includes lands designated for future urban development. Development of these lands would likely occur beyond 15-20 years, however the market may drive development of a portion of these lands sooner. The delivery of urban level services shall be determined by the functional master plans for public infrastructure.	Land uses in this area are guided by a subarea plan titled: <i>The Plan for the Region Between Fort Collins and Loveland</i> . Land uses vary from clustered, rural and low density residential, mixed-use and open space and continued agriculture. The Plan includes strategies to retain the area's rural character and preserve open space.	This category includes parks, open lands, golf courses and related facilities.	The Airport Influence Area is an overlay designation that includes the property occupied by the Loveland-Fort Collins Airport and areas affected by the various influence zone designations associated with the airport.	The Flood Plain overlay category is the 100-year flood plain as designated by the Federal Emergency Management Agency (FEMA). This designation is depicted as an overlay with underlying designations that vary depending on location and adjacent uses. "Floodplain" is not a use per se, but instead an indication of a physical condition that influences appropriate use and restrictions on development in these areas.
Location Factors	The appearance of industrial uses range from attractive light industrial/office to less attractive heavy industrial and uses with outdoor storage. Industrial designations are concentrated in the vicinity of the Airport and the Crossroads/I-25 area. Other locations are scattered throughout the city that primarily reflect established development patterns. Industrial locations typically provide direct access to major highways.	This designation is typically applied in areas that are not currently served by utilities and where land use patterns or trends have not been established or can not be determined at this time. Specific land use designations may change in the future when appropriate land uses can be determined and utilities can be provided.	Generally north of 57th Street to CR 30. Plan boundaries extend north of the City GMA boundary to include southern portions of the City of Fort Collins.	The Future Land Use Plan Map primarily indicates significant existing parks and open lands. Future uses of this nature may be located, where appropriate, in any of the land use categories.	As determined by the location of the Airport and various noise zones and flight pattern designations.	As determined by FEMA floodplain mapping.
Development Guidelines	Standards as determined by <i>Commercial and Industrial Architectural Standards (Municipal Code 18.53)</i> .	N/A	Open space and buffer guidelines as determined by: <i>The Plan for the Region Between Fort Collins and Loveland, pages 42-45</i>	The City's adopted Open Lands and	For further detail on development guidelines and land use within this area, refer to the Land Use Schedule, Figure 4.6-A, in the Loveland Comprehensive Master Plan. Also, refer to adopted Airport Master Plan.	As determined by applicable local and federal floodplain regulations and guidelines. Wetland factors and regulatory constraints may also apply in areas where wetland conditions also exist.
Alignment with Zoning	<ul style="list-style-type: none"> I-Industrial B-Developing Business 	DR-Developing Resource	Varies, predominant zoning will be PD-Planned Development	A variety of zoning districts permit such uses	<ul style="list-style-type: none"> I-Industrial for Airport property Underlying zoning of influence area will vary 	As may be determined by underlying land use designation and floodplain regulations.

