Town of Lyons Documents (sewage and water service, and stormwater management) Pertaining to the Suitability of Properties Proposed in the Draft 2024 IGA
Part 1: Northern Steamboat Valley
Contributed by Cindy Fisher

The Town of Lyons Blue line Ordinance, Sec 13-1-130 of the Municipal Code, for properties located wholly or partially above the blue line.

Blue line Ordinance:
a) Limit of Service. No water or wastewater service shall be provided by the Town Utility Departments to any property located wholly or partially above the blue line (5,450 ft. elevation), unless applied for and granted a variance from the Town. (Blue Line Ordinance).

(e) **Granting of blue line variance.**
"… the Board of Trustees may grant a blue line variance and may condition such variance **upon conditions necessary to ensure that the service will not detrimentally affect the health, safety or welfare of the residents of the proposed development or consumers of the public water and wastewater systems**. A blue line variance shall be a legislative act by the Board of Trustees, **shall be subject to public referendum** and shall be made by written resolution containing a legal description of the property affected by the variance and all terms and conditions of the variance…."(Blue Line Ordinance).

Document: Water Distribution and Sanitary Sewer Collection System Capital Improvements Plan, Town of Lyons, CO January 2017.

"The plan evaluates the town's current water distribution system and wastewater collection system and identifies the improvements needed to both systems.". (Water Distribution and Sanitary Sewer Collection System Capital Improvements plan, p. 1, hear after WDSSCSCIplan)

The following recommendations were made. Cost estimates were for 2017. (WDSSCSCIplan p.1)

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The proposed wastewater collection system improvements consist of four pipeline replacement projects, four pipeline repair projects, and a lift station replacement project. A summary of these capital improvement projects and their cost estimates are listed in Table 1.

Table 1 – Summary of Wastewater Capital Improvement Projects

Wastewater Capital Improvement Project	Cost Estimate
North Old Town Alleys - 4th Avenue to 5th Avenue	$520,013
Meily Street - Ewald Avenue to 5th Avenue	$168,396
Longs Peak Drive	$359,208
Broadway from Park to 2nd	$46,200
Broadway from 3rd to 5th	$63,600
Park Drive from 4th to 5th	$104,850
4th from Evans to Main Street	$48,000
High Street- 4th Avenue to 5th Avenue	$32,400
Eagle Canyon Lift Station	$192,522
TOTAL	**$1,535,190**

The proposed water distribution system improvements consist of five pipe replacement projects, pipe upsizing, and the rerouting of transmission line along St. Vrain Creek. A summary of these capital improvement projects and their cost estimates are listed in Table 2.

Table 2 – Summary of Water Distribution Capital Improvement Projects

Water Capital Improvement Project	Cost Estimate
3rd Avenue - Evans to Railroad	$99,584
High Street - 4th Avenue to 5th Avenue	$186,302
North 5th Avenue - Seward to Steamboat Valley Road	$281,813
Vasquez Court / Horizon Drive Loop	$318,994
Longs Peak Drive Loop	$331,336
St. Vrain Creek	$91,661
Upsize Four-inch Water Mains	$903,304
TOTAL	**$2,212,994**

This plan is intended to be a working document and should be updated regularly as part of the Town's routine maintenance programs.

Water Capital Improvement Projects in North Old Town Area

You can see there are several areas that directly affect the IGA 2024 Draft proposed building areas. Several of the areas that provide water to northern Steamboat Valley are highlighted for waterline improvements in 2017. Figure 1. Water Capital Improvement Projects in North Old Town Area (WDSSCSCIplan p.7)

Adding more residences would further stress the system.

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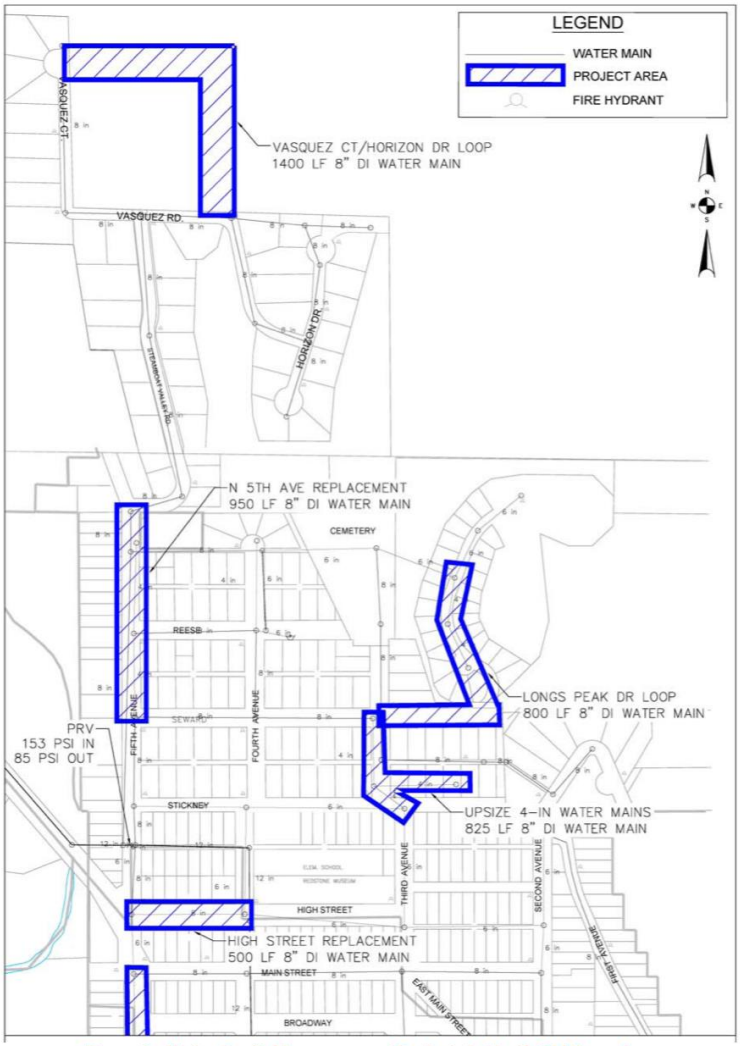
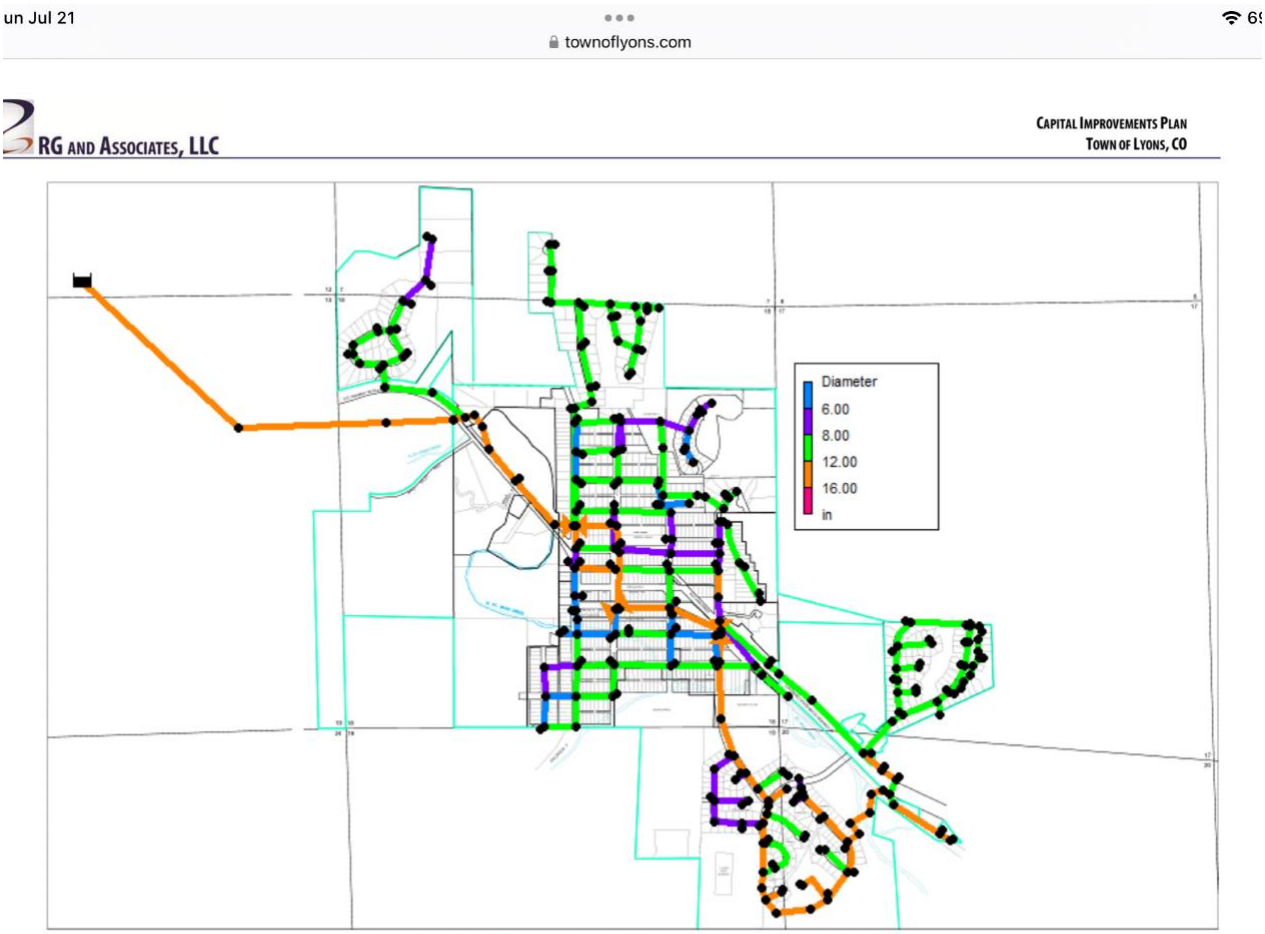


Figure 1 – Water Capital Improvement Projects in North Old Town Area

Figure 10 illustrates the pipe diameters in the Town. (WDSSCSCIplan p.31)

There are small diameter pipes leading up to the North Steamboat area and in Longs Peak Drive that negatively impact the delivery of water to the North.



The result of the inadequate water pipe diameters is low water pressure in the Steamboat Valley and Longs Peak drive service areas, as modeled for average demand. See figure 11 below, for the system pressures at Average Day Demand. (WDSSCSCIplan p.34)

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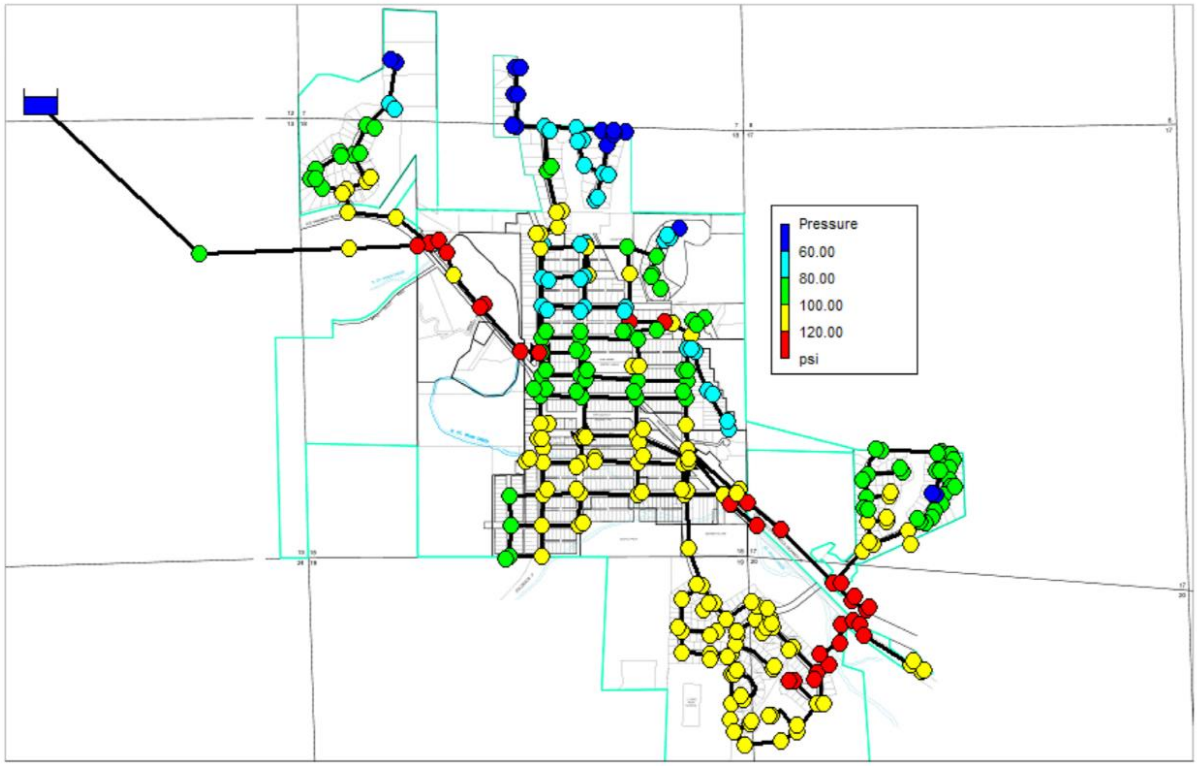

Figure 11 – Water Distribution System Pressures at Average Day Demand

In the areas of North Steam Valley and Longs Peak Drive at times of peak hour demand, the pressure is further reduced, as modeled for peak hour demand. See figure 13 below, for the system pressures at Peak Hour Demand. (WDSSCSCIplan p.36)

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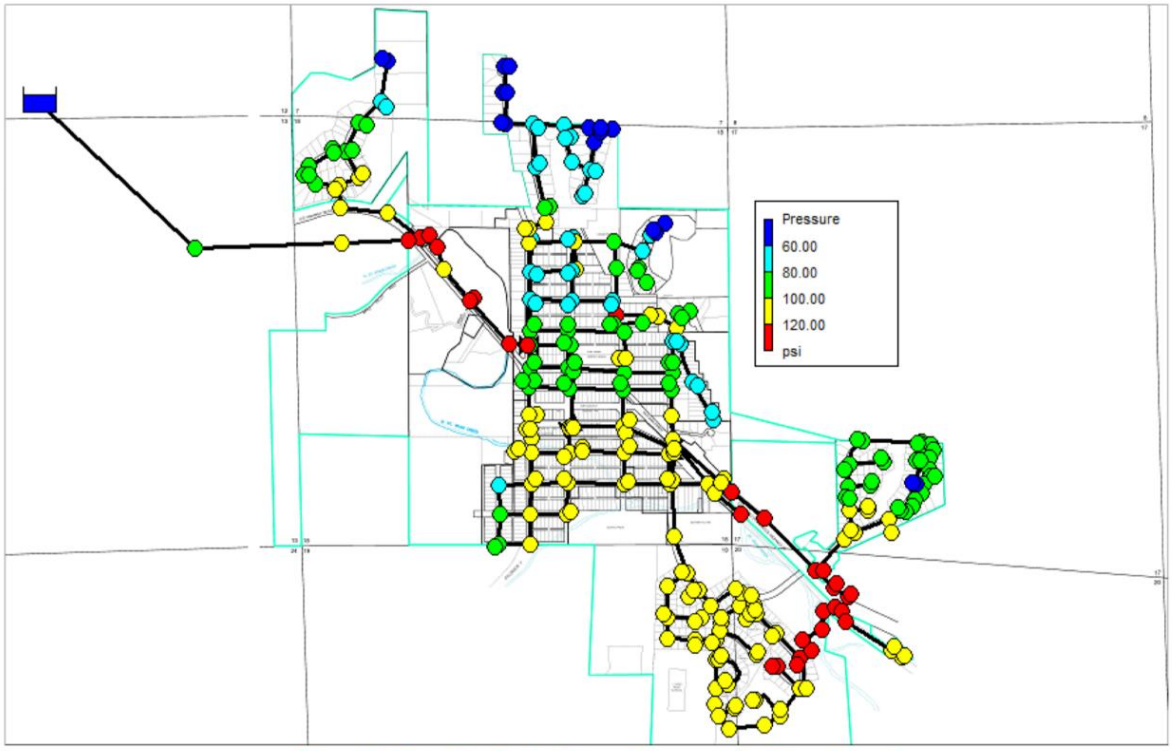


Figure 13 – Water Distribution System Pressures at Peak Hour Demand

A fire flow analysis model was conducted to determine pressures and head loss at areas throughout the Town. In most areas the pressures and head loss were acceptable. However, in locations where a hydrant is connected to a four-inch water main, or near the limit of the blue line service area, the hydrants would not be able to properly function in the event of a fire. (WDSSCSCIplan p.33)

Given that the Town has not had the funds to address the current water infrastructure issues, the prospect of adding additional residences to North Steamboat Valley, appears contrary to the text in the blue line ordinance (e), stating that projects should not detrimentally affect the health, safety or welfare of the residents.

Sanitary Sewer Collection System January 2017.

The sewage of north Steamboat Valley flows down into 4th Ave, where the report recommended replacing the current sewer main with 2000 linear feet of 8" PVC. (Water Distribution and Sanitary Sewer Collection System Capital Improvements Plan, Town of Lyons, CO January 2017, p.17).

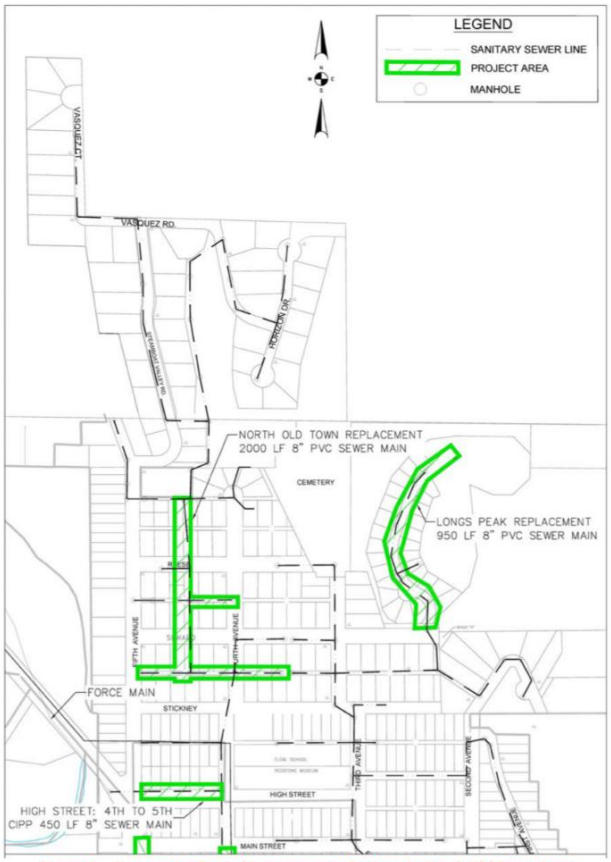


Figure 5 – Wastewater Capital Improvement Projects in North Old Town Area

Stormwater considerations

Document: Town of Lyons Stormwater Masterplan ICON Engineering, Inc. November 2016

"The most significant flood hazard impacting downtown Lyons is runoff from Steamboat Valley." p. 32

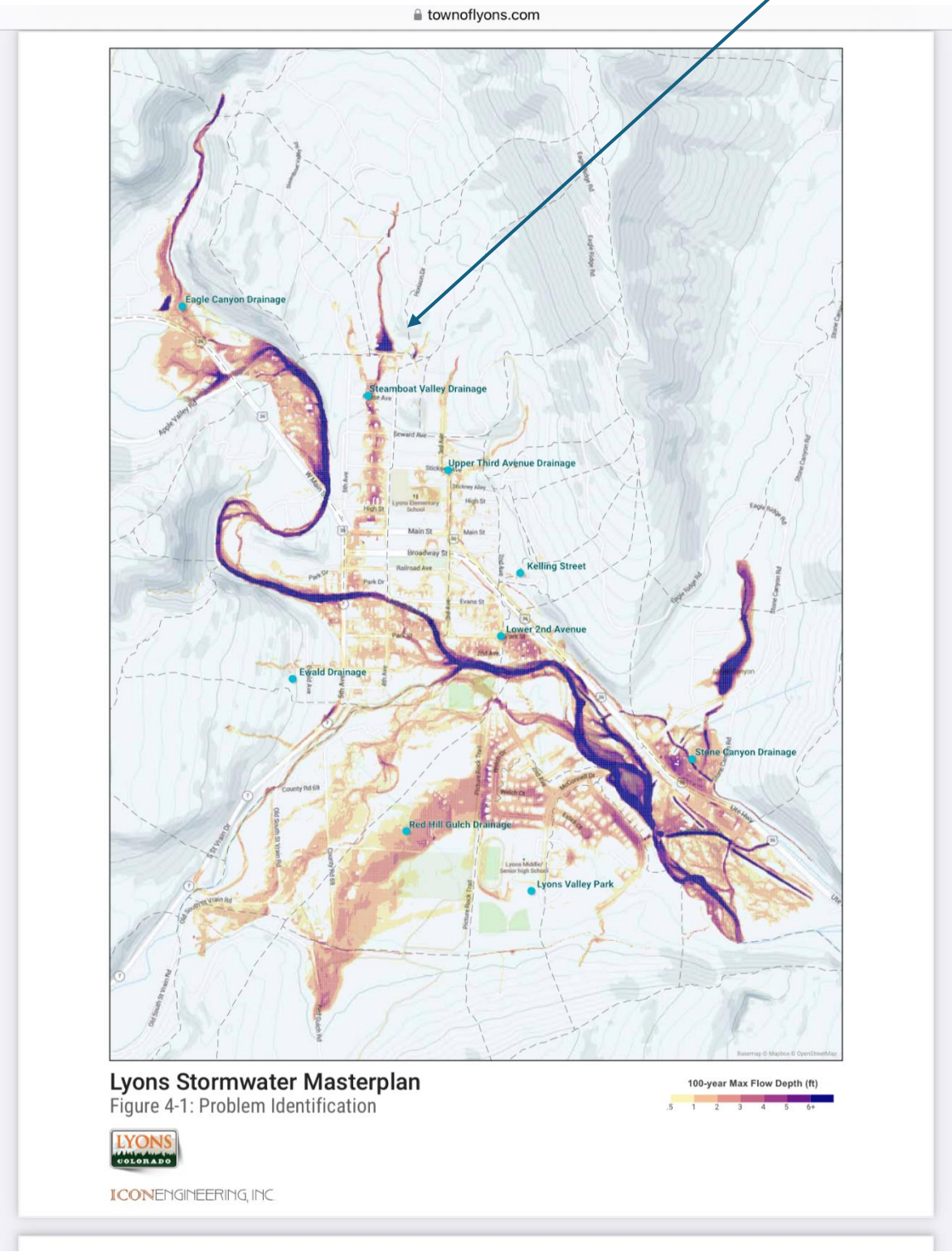
1) **Inadequate Stormwater Infrastructure**
   "Existing drainage in the Town reflects open channel drainageways in combination with storm sewer conveyance for more urbanized areas. **Most of the Town's existing drainage infrastructure is under-sized due to the increase in development within the Town during the 1990s.** The existing conveyance system has the capacity to convey nuisance flows, **but it does not have the capacity to convey even the minor (5-year) storm events." (page 7, 2.21 Project Area).**

2) **Steamboat Valley Drainage**
   2.3.9"The majority of the 370-acre watershed converges just upstream of downtown and is conveyed between 4th and 5th Avenue. In the upper reaches, the watershed consists of large lot residential and undeveloped properties. The lower third of the watershed is fully developed consisting of residential and commercial lots. In the lower downtown area, the watershed is bounded by 4th Avenue to the east and North St. Vrain Creek to the west. The watershed ranges in elevation from 6500 feet to 5335 feet."

   "The flow concentrates in the upper reaches in an open channel with an approximate slope of 16 percent. **The flow continues south into a private inadvertent storage area on the Russell property** upstream of the old railroad embankment. Downstream of the railroad embankment the drainageway is confined in a small open channel that conveys flow through backyards of private property. There are several

Figure 4.1 Problem identification. Map from model of 100-year flood. Town of Lyons Stormwater Masterplan ICON Engineering, Inc. November 2016.

Railroad embankment Russell property, 6’ deep



roadway crossings within this reach including Vasquez Road, McCally Alley, Reese Avenue, Steward Avenue, and Stickney Avenue. A reportedly historic stone box culvert intercepts flow and conveys flow underneath downtown until the outfall location into North St. Vrain Creek. The slope is approximately four percent downstream of the railroad embankment" P. 13.

Hydrologic Analysis

4.3.9 Steamboat Valley

"The most significant flood hazard impacting downtown Lyons is runoff from Steamboat Valley. The runoff from the upper watershed concentrates behind the old railroad embankment The area behind the old railroad embankment poses a significant flood hazard to downstream properties. Close observation on the stability and maintenance of this embankment is important to managing the risk of a breach or other failure during a storm event. This will require coordination with several private property owners. Downstream of the railroad embankment development within the natural drainage path has confined the runoff to an undersized open channel through private property. The lack of conveyance capacity of this channel and culvert roadway crossings between 4th Avenue and 5th Avenue creates a flooding hazard damaging private property. Any flow that is not intercepted by the historic stone culvert continues the surface flowing through backyards with additional impact to private property and structures." p. 32

"**The existing conveyance within Steamboat Valley does not have the hydraulic capacity to convey storms greater than the 5-year return period**. More importantly, the materials (stone and open channel) and alignment (erratic with several sharp bends and constrictions) subjects the adjacent properties to additional risk from debris clogging." (p. 32)