

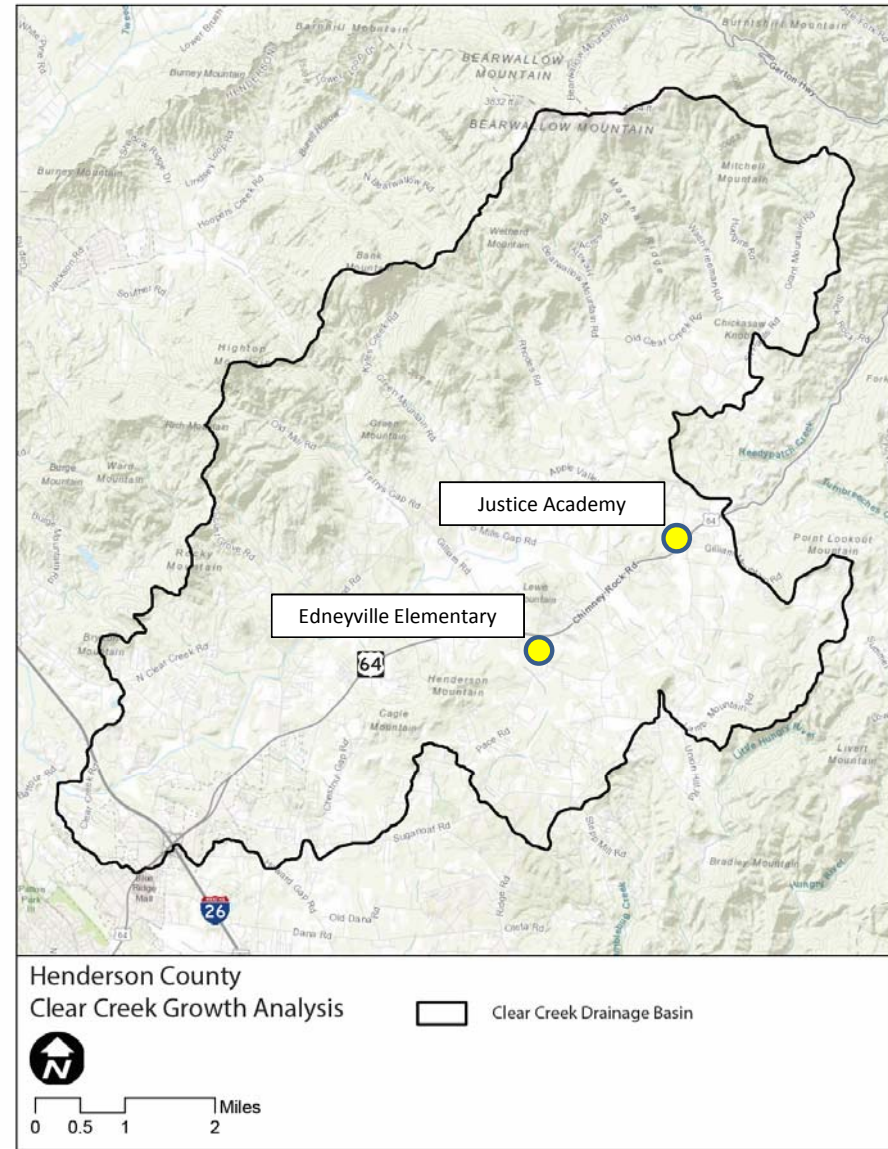
Henderson County

Clear Creek Growth Analysis

Henderson County Board of Commissioners Presentation
January 17, 2018

BENCHMARK

Clear Creek Drainage Basin Study Area



Sewer Service Options

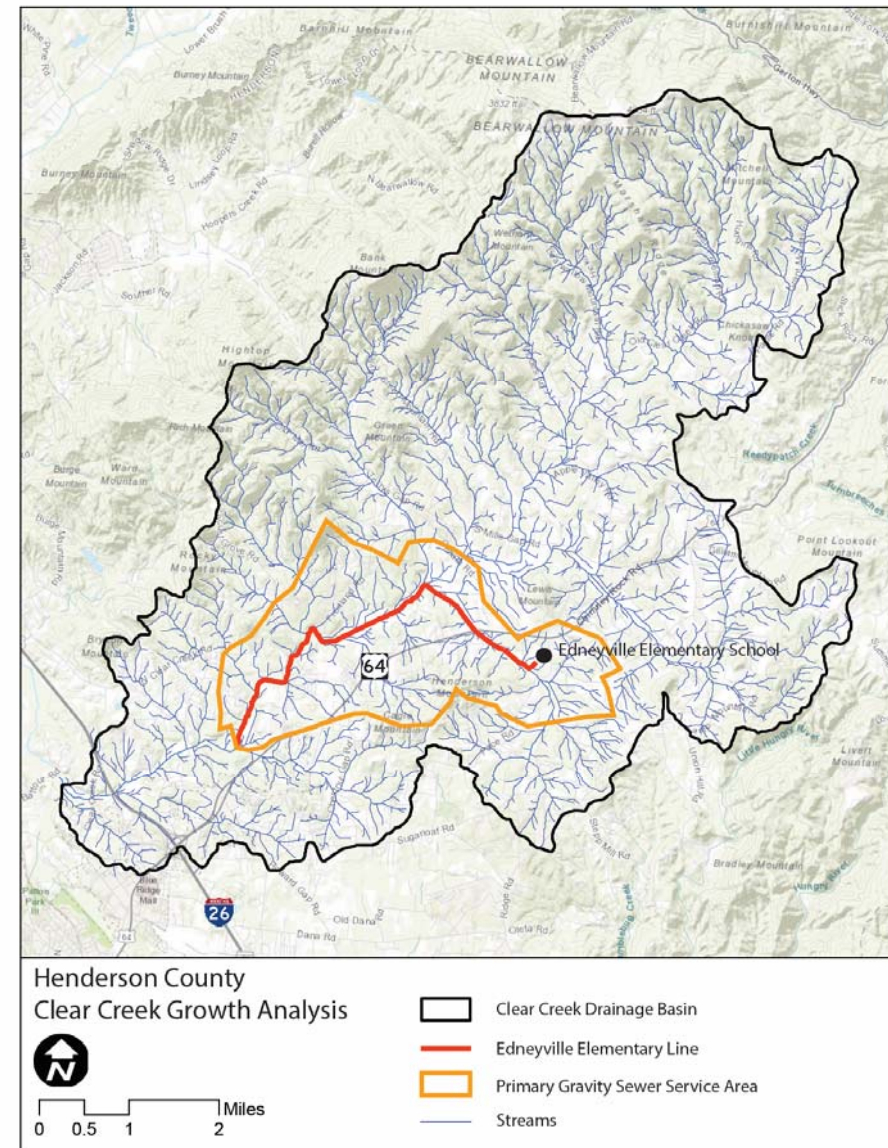
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Gravity Sewer Option: Serving Edneyville Elementary

Primary Service Area: 4,050 acres

Additional collection lines required to be installed to serve property that is not immediately adjacent to the main interceptor.

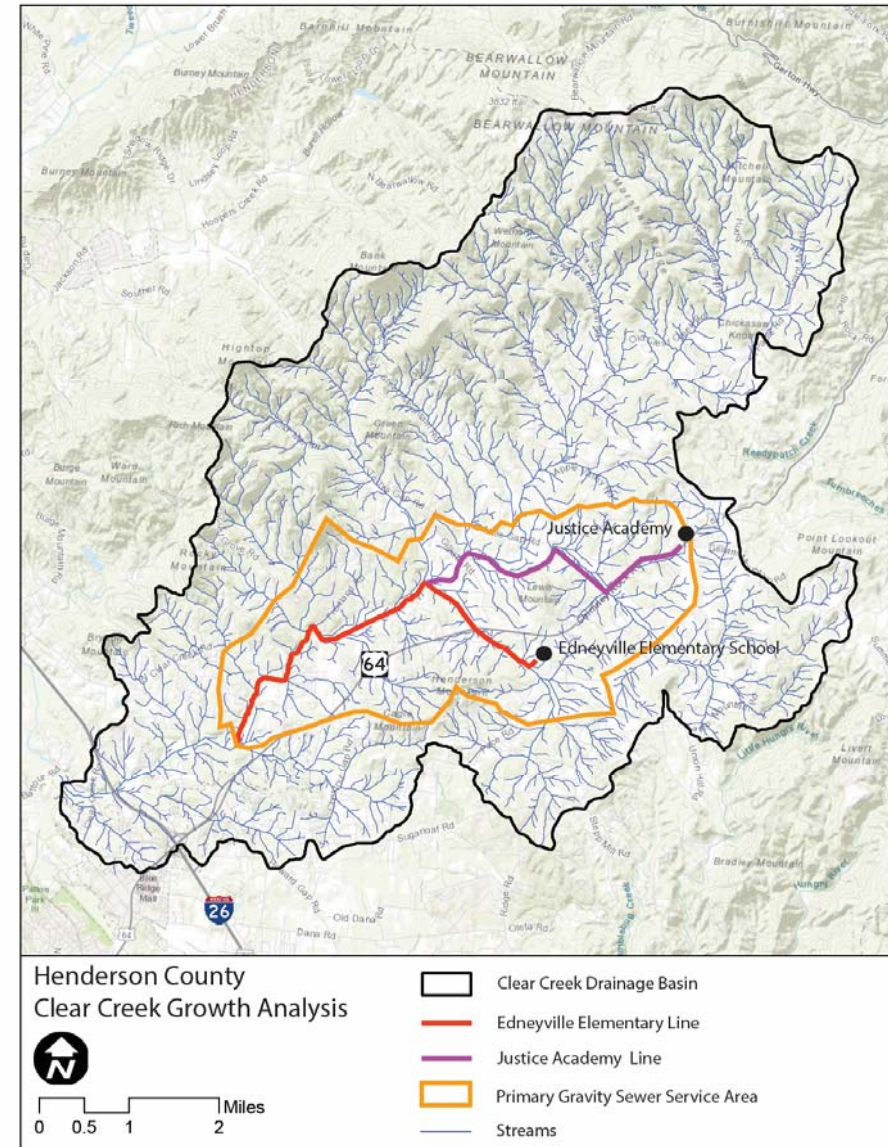
Justice Academy could be served via a force main to the interceptor.



Gravity Sewer Option: Serving Edneyville Elementary + Justice Academy

Primary Service Area: 6,150 acres

Additional collection lines required to be installed to serve property that is not immediately adjacent to the main interceptor.

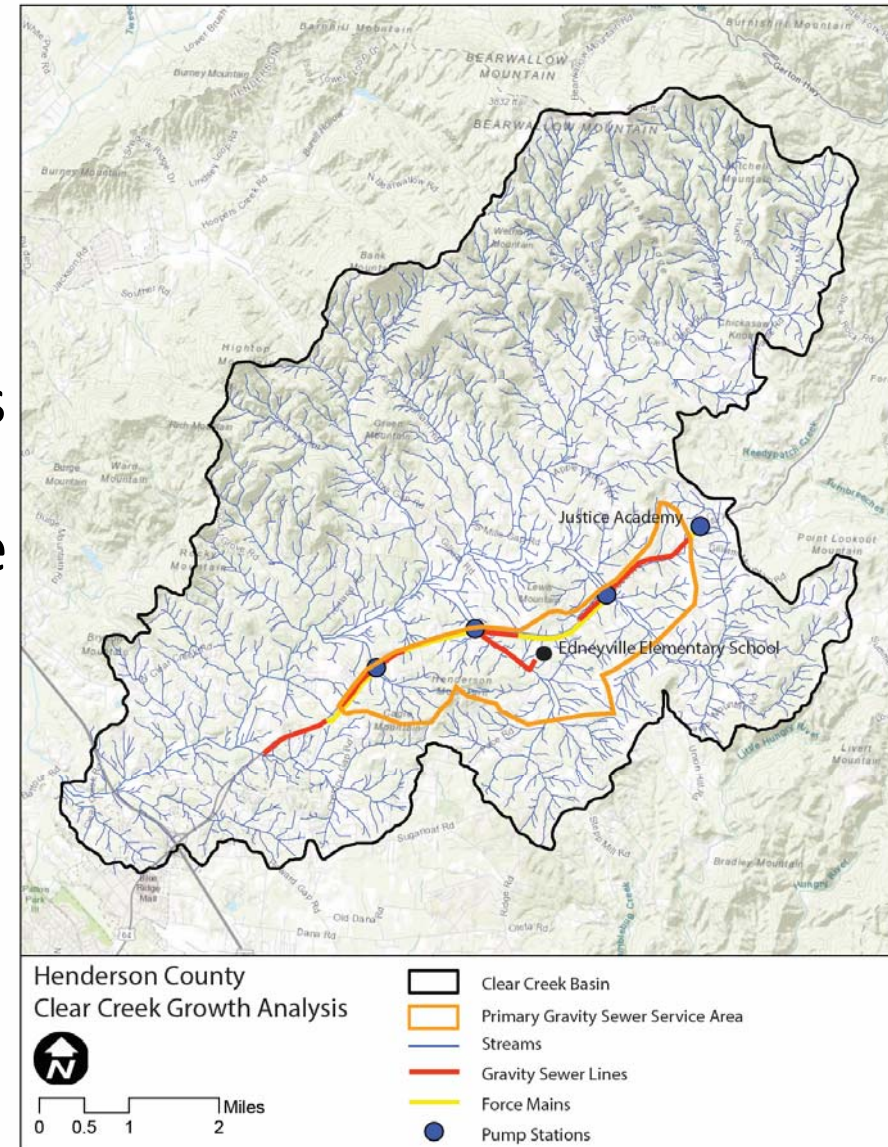


Barnwell Sewer Option: Serving Edneyville Elementary + Justice Academy

Primary Gravity Service Area: 2,330 acres

Properties north of US 64 adjacent to the gravity lines may need onsite pumps to access the line depending on elevation

Additional collection lines needed to serve properties south of 64 that are not adjacent to a gravity line.



Primary Land Supply

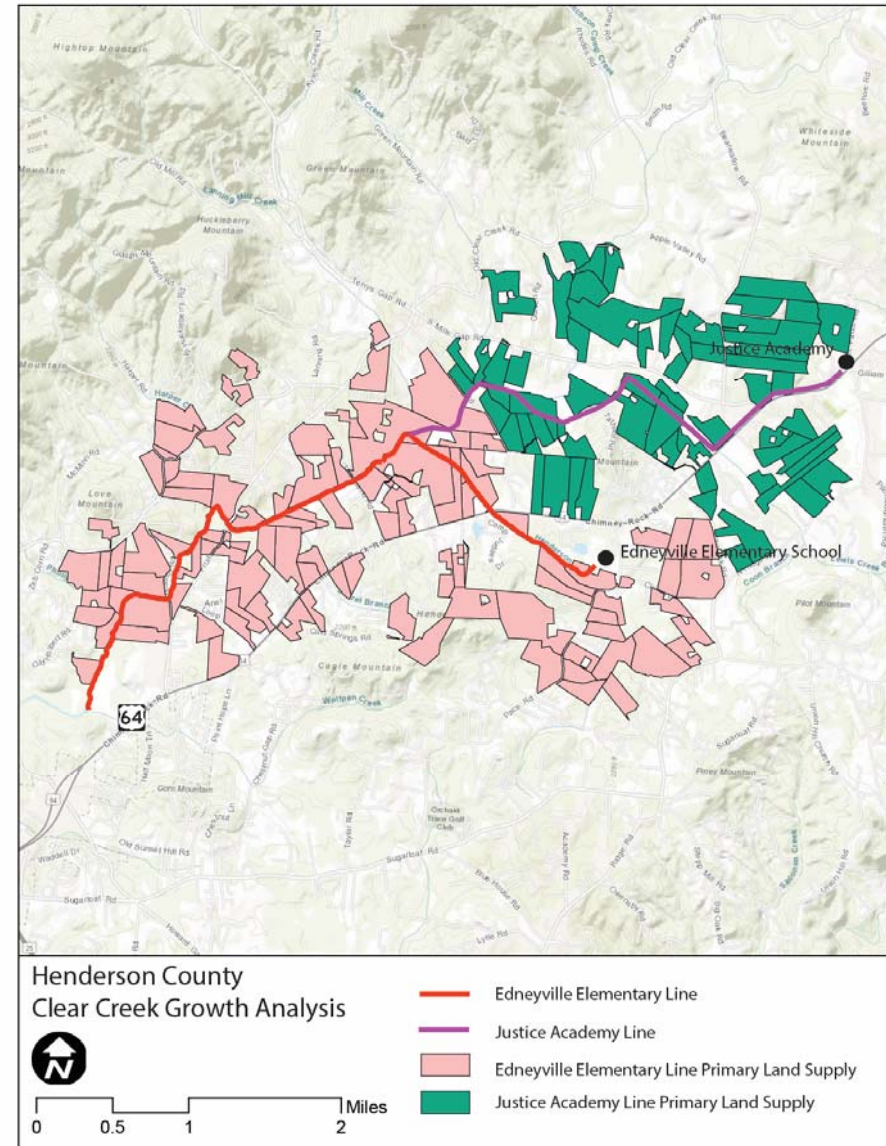
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Gravity Sewer Option

Primary Land Supply

Primary Land Supply: 3,070 acres

- Edneyville Elementary Line: 2,010 acres
- Justice Academy Line: 1,260 acres

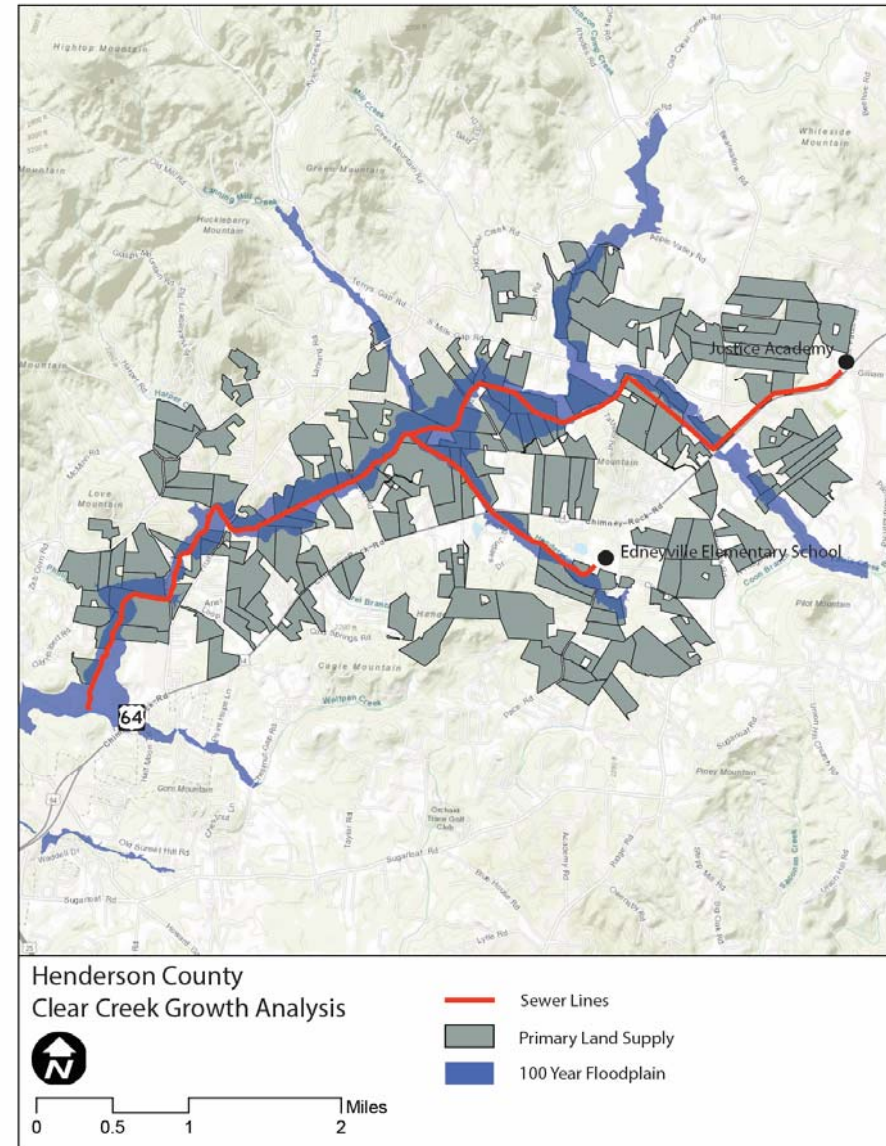


Gravity Sewer Option

Primary Land Supply Floodplain Impacts

Floodplain Impacts: 565 acres

- Edneyville Elementary Line: 365 acres
- Justice Academy Line: 200 acres

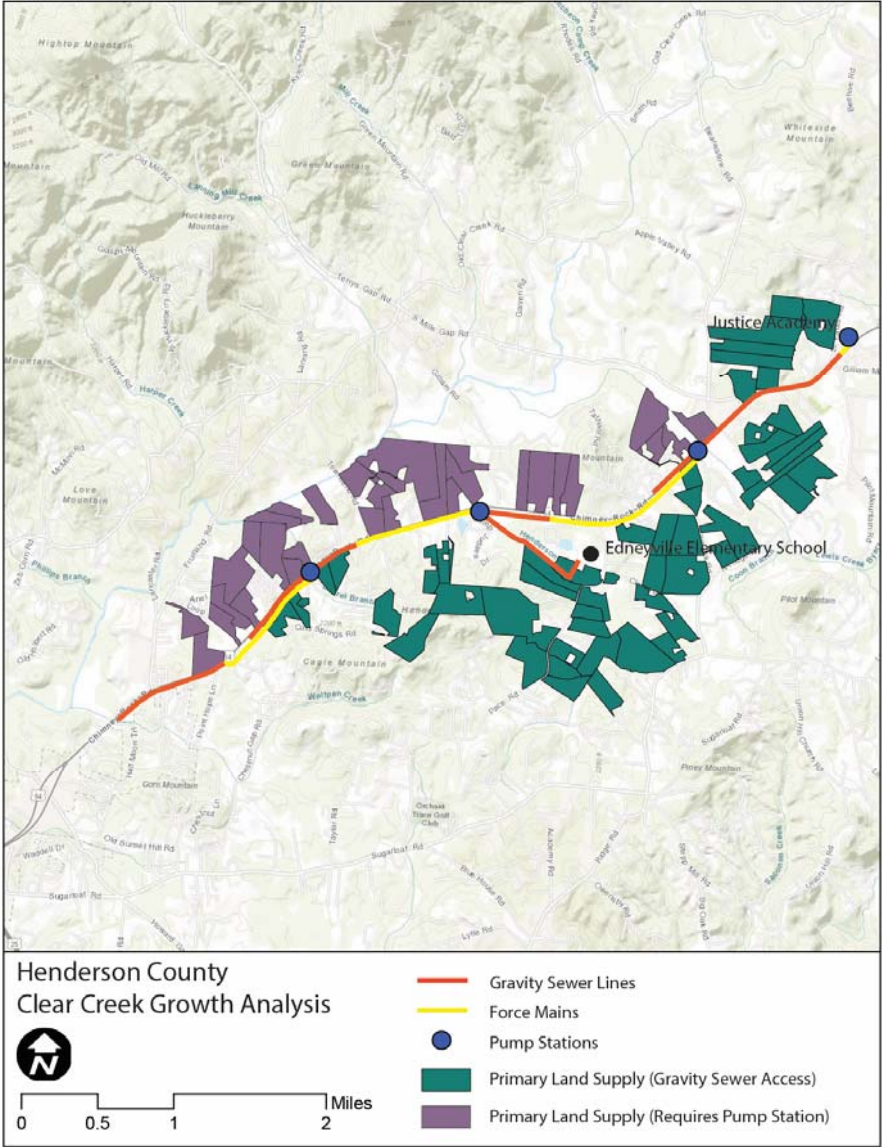


Barnwell Sewer Option

Primary Land Supply

Primary Land Supply: 1,720 acres

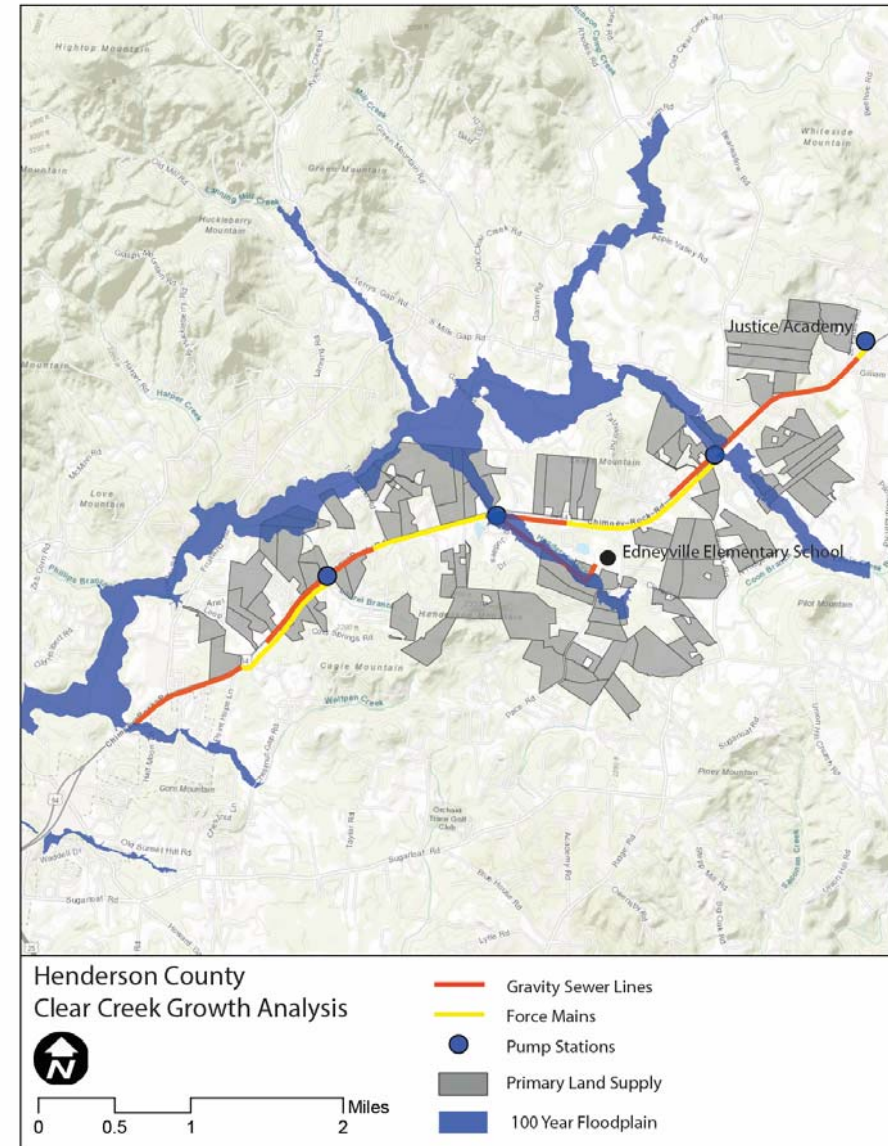
- Gravity Service: 1,100 acres
- Pump Station Service: 620 acres



Barnwell Sewer Option

Primary Land Supply Floodplain Impacts

Floodplain Impacts: 140 acres



Regulatory Development Capacity

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Gravity Sewer Option

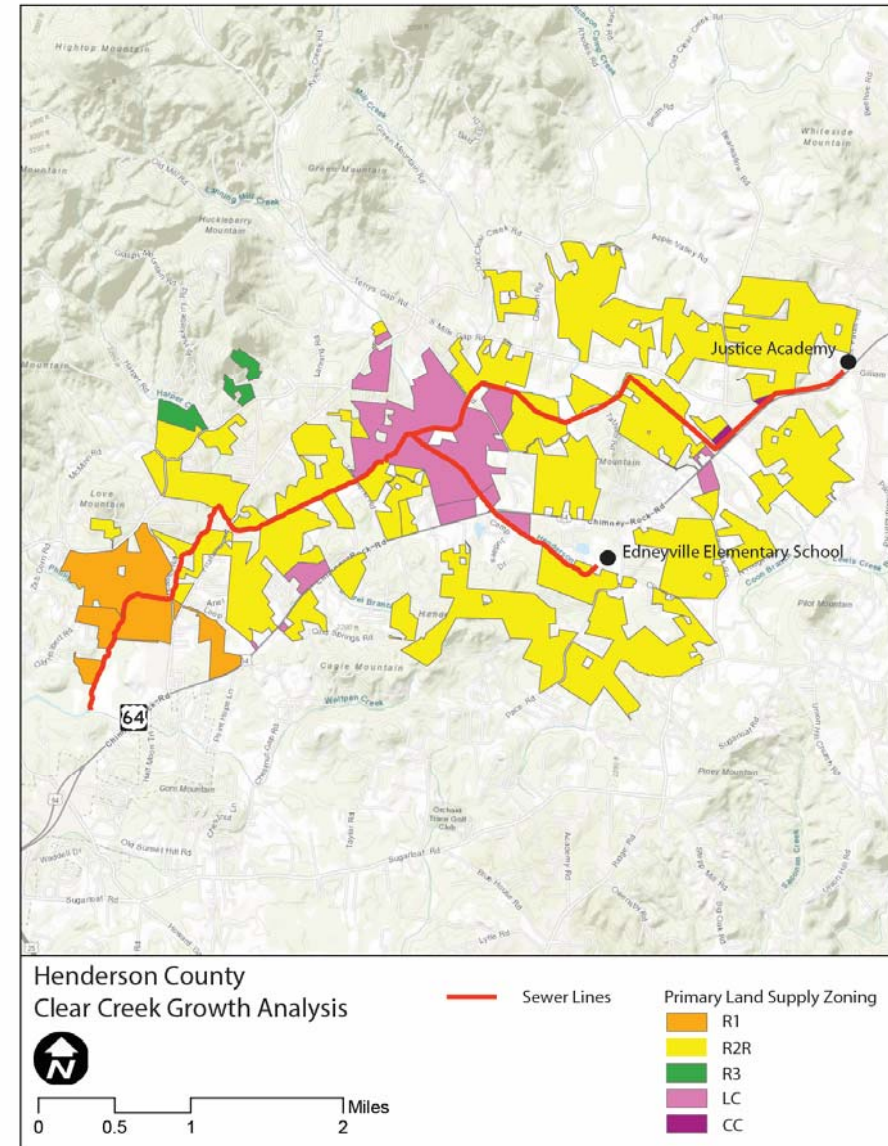
Primary Land Supply Current Zoning

Edneyville Elementary Line:

- R1: 287 acres
- R2R: 1,255 acres
- R3: 50 acres
- LC 417 acres

Justice Academy Line:

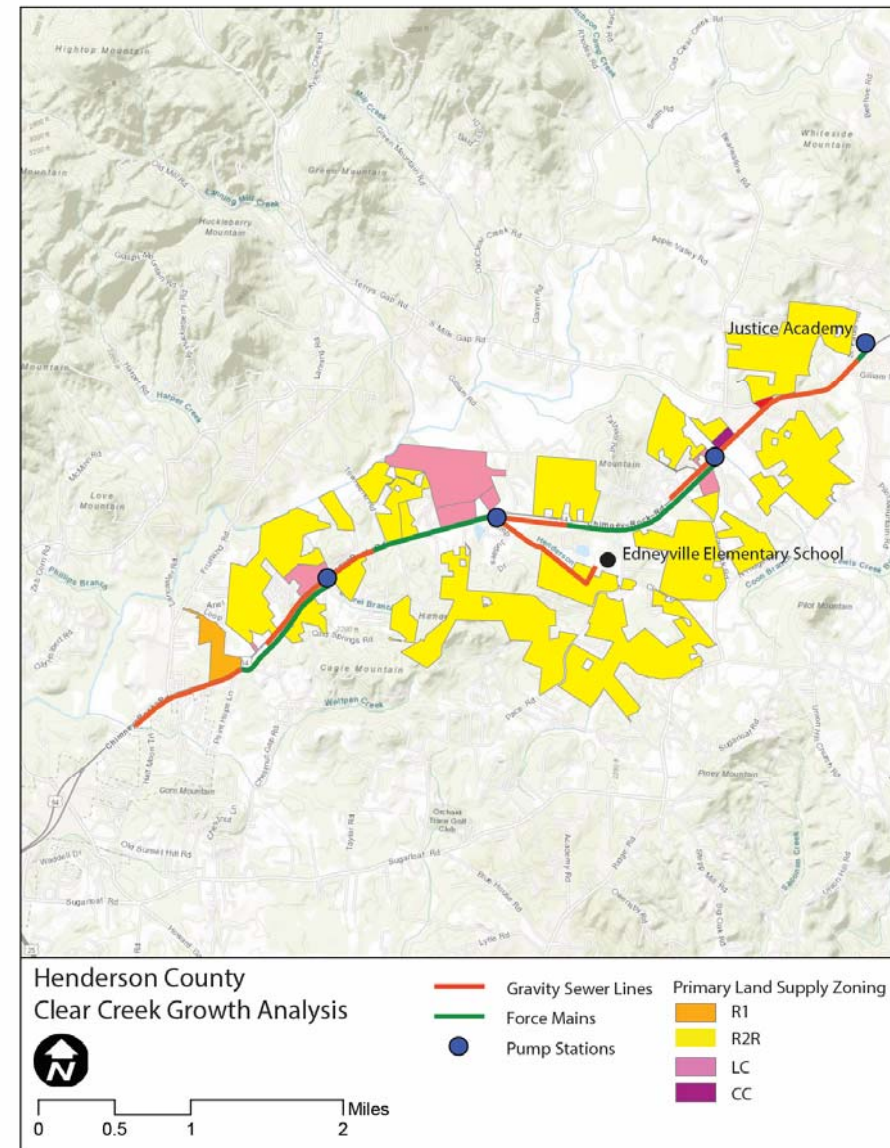
- R2R: 1,206 acres
- LC: 43 acres
- CC: 11 acres



Barnwell Option

Primary Land Supply Current Zoning

- R1: 37 acres
- R2R: 1,494 acres
- LC: 179 acres
- CC: 12 acres



Residential Density Standards

- R1: 8 single family dwelling units per acre¹
- R2R: 2 single family dwelling units per acre
- R3: 0.66 single family dwelling units per acre
- LC: 4 single family dwelling units per acre¹
- CC: single family dwellings not permitted¹

¹The R1, LC and CC districts each allow up to 16 multi-family dwelling units per acre to be developed where public utilities are available.

Maximum Single Family Development Capacity Based on Current Zoning

- Gravity Sewer Option: 9,091 Single Family Dwellings
 - Edneyville Elementary Line: 6,507 Single Family Dwellings
 - Justice Academy Line: 2,584 Single Family Dwellings
- Barnwell Option: 4,000 Single Family Dwellings

Maximum Residential Development Capacity Based on Current Zoning

- Gravity Sewer Option: 16,907 Dwelling Units
 - Edneyville Elementary Line: 13,807 Dwelling Units
 - Single Family Dwellings: 2,543
 - Multi Family Dwellings: 11,264
 - Justice Academy Line: 3,100 Dwelling Units
 - Single Family Dwellings: 2,412
 - Multi Family Dwellings: 688
- Barnwell Option: 6,044 Dwelling Units
 - Single Family Dwellings: 2,988
 - Multi Family Dwellings: 3,056

Growth Scenarios

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Population and Housing Trends

- OSBM Population Projections for Henderson County
 - 2020 to 2030: +13,500
 - 2030 to 2040: +7,100
 - Total Population Growth Estimate: +20,600
- Current Average Household Size: 2.3
- Dwelling Units Required to Meet Growth Demand:
 - 2020 to 2030: 5,871
 - 2030 to 2040: 3,087
 - Total New Dwelling Units Required: 8,958

Market Capture

- Two scenarios are presented for the period of 2020-40:
 - Scenario 1 maintains current market capture rates for the study area at **15%** of the county's annual housing growth
 - Scenario 2 accelerates the study area's market capture to **25%** of annual housing growth in the county
 - Acreage demand is based on a blended average density of 5 dwelling units per acre

Market Capture

- Scenario 1: 15% Market Capture 2020 - 2040
 - Total Housing Demand: 1,340 dwelling units
 - 2020 – 2030 Annual Demand: 88 dwellings units per year
 - 2030 – 2040 Annual Demand: 46 dwellings units per year
 - Total Land Required: 270 acres¹
 - 2020 – 2030 Annual Demand: 18 acres per year
 - 2030 – 2040 Annual Demand: 9 acres per year

¹The acreage requirements are rounded to whole numbers

Market Capture

- Scenario 2: 25% Market Capture 2020 - 2040
 - Total Housing Demand: 2,240 dwelling units
 - 2020 – 2030 Annual Demand: 147 dwellings units per year
 - 2030 – 2040 Annual Demand: 77 dwellings units per year
 - Total Land Required: 440 acres¹
 - 2020 – 2030 Annual Demand: 29 acres per year
 - 2030 – 2040 Annual Demand: 15 acres per year

¹The acreage requirements are rounded to whole numbers

Growth Capacity

- As growth continues in the county, land resources will be depleted in current high-growth areas.
- This will likely lead to an upward shift in the Clear Creek Basin's market capture rate – regardless of the presence of sewer.
- The growth scenarios assume development at 5 dwelling units per acre on average, which is sewer dependent.

Growth Capacity

- Without sewer, additional land resources will be required to meet housing demand.
- There are no regulatory constraints that would slow or stop the land resources in the basin from being developed to meet demand.
- Without sewer, overall development density would likely decrease to around 1 dwelling unit per acre

Growth Capacity

- Scenario 1 (15% Market Capture) Land Requirements:
 - With Sewer (5 du/acre): 270 acres
 - Without Sewer (1 du/acre): 1,340 acres
- Scenario 2 (25% Market Capture) Land Requirements:
 - With Sewer (5 du/acre): 440 acres
 - Without Sewer (1 du/acre): 2,240 acres

Growth Capacity

- At higher densities, each of the sewer service options have sufficient land supply to meet growth demands at higher densities.
- Current regulations may increase land requirements to meet demand, depending on the share of the market that is made up by new multi-family housing.

Growth Considerations

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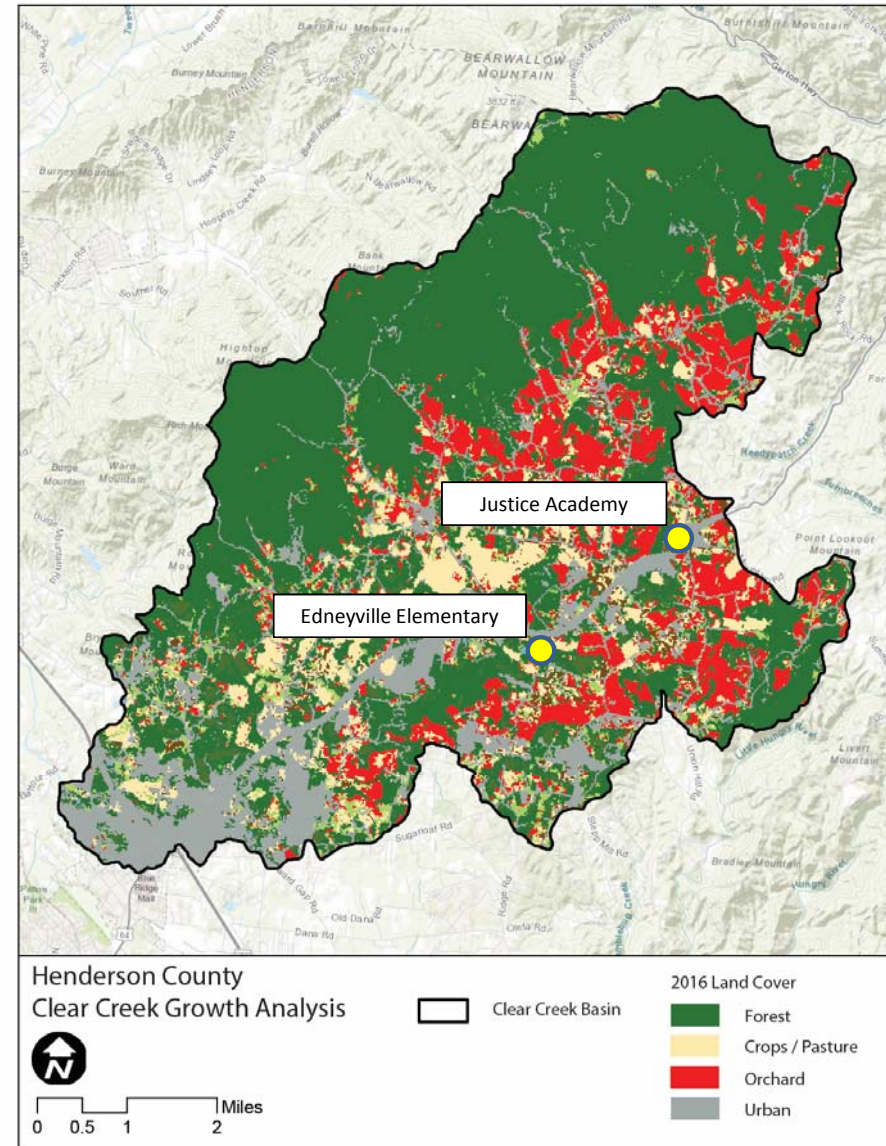
Clear Creek Drainage Basin

Current Land Cover / Development Pattern

2016 Land Cover Data from USDA

Generalized Classification:

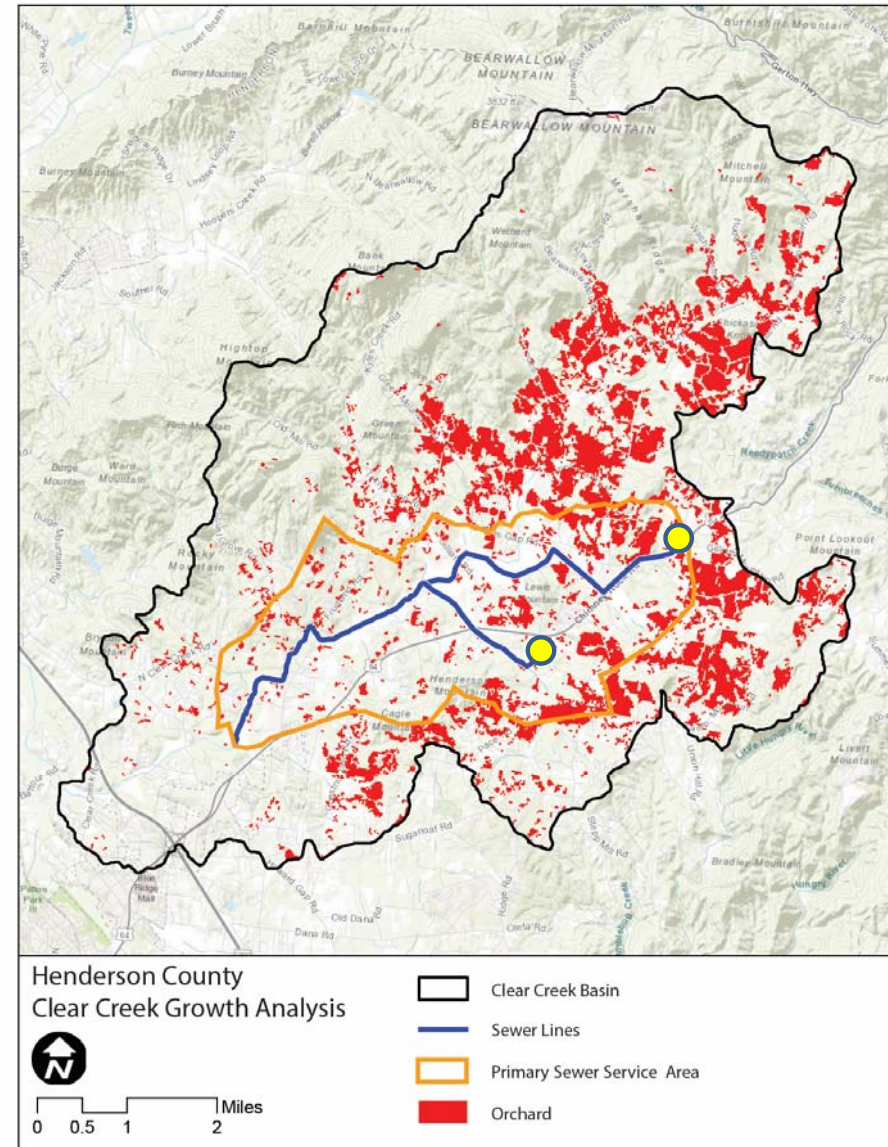
- Forest (green)
- Crops / Pasture (yellow)
- Orchards (red)
- Urban (gray)



Clear Creek Drainage Basin

Potential Impacts to Orchards

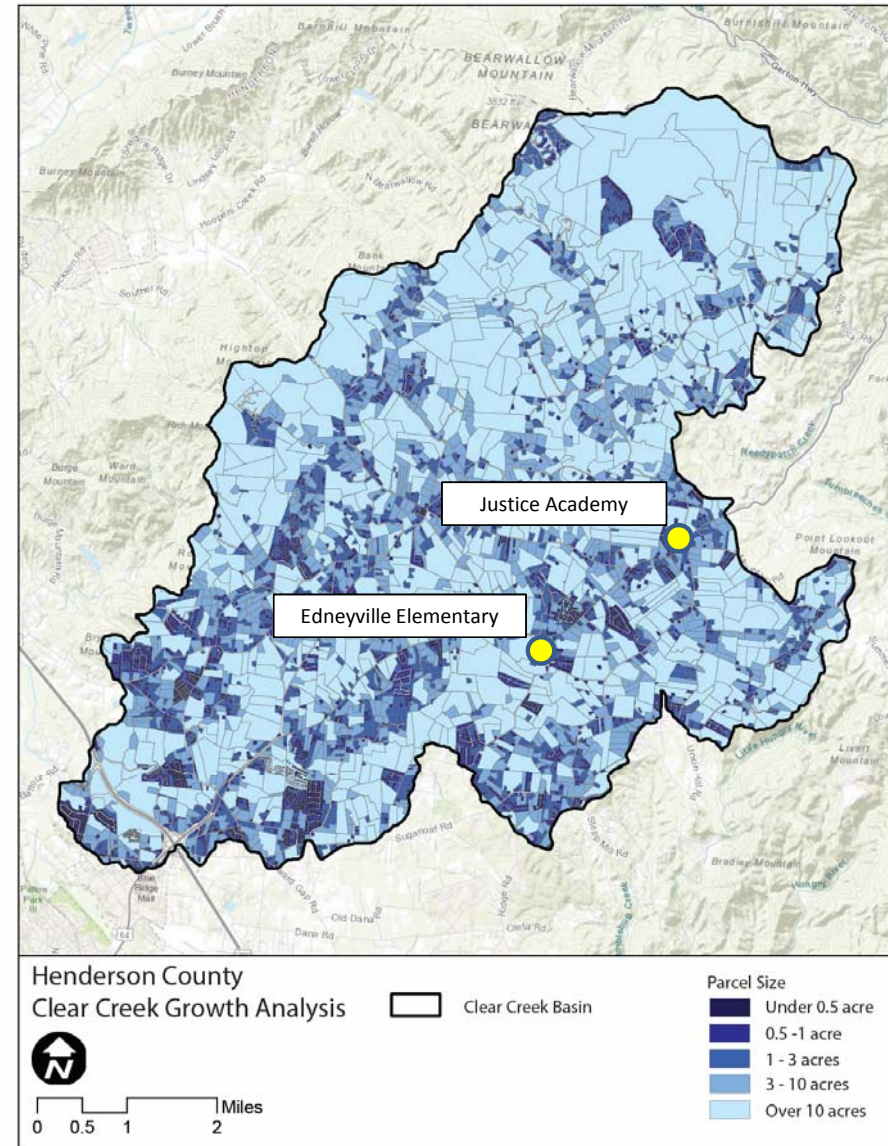
- Concerns expressed over impacts to existing orchards.
- Data indicates that most orchards in the Clear Creek Basin are outside of the largest primary service area for gravity sewer service (as proposed).



Clear Creek Drainage Basin

Current Land Subdivision Pattern

- Land subdivision patterns show dispersed development activity in the basin.
- The lack of utilities in the majority of the basin has influenced the scattered development pattern.

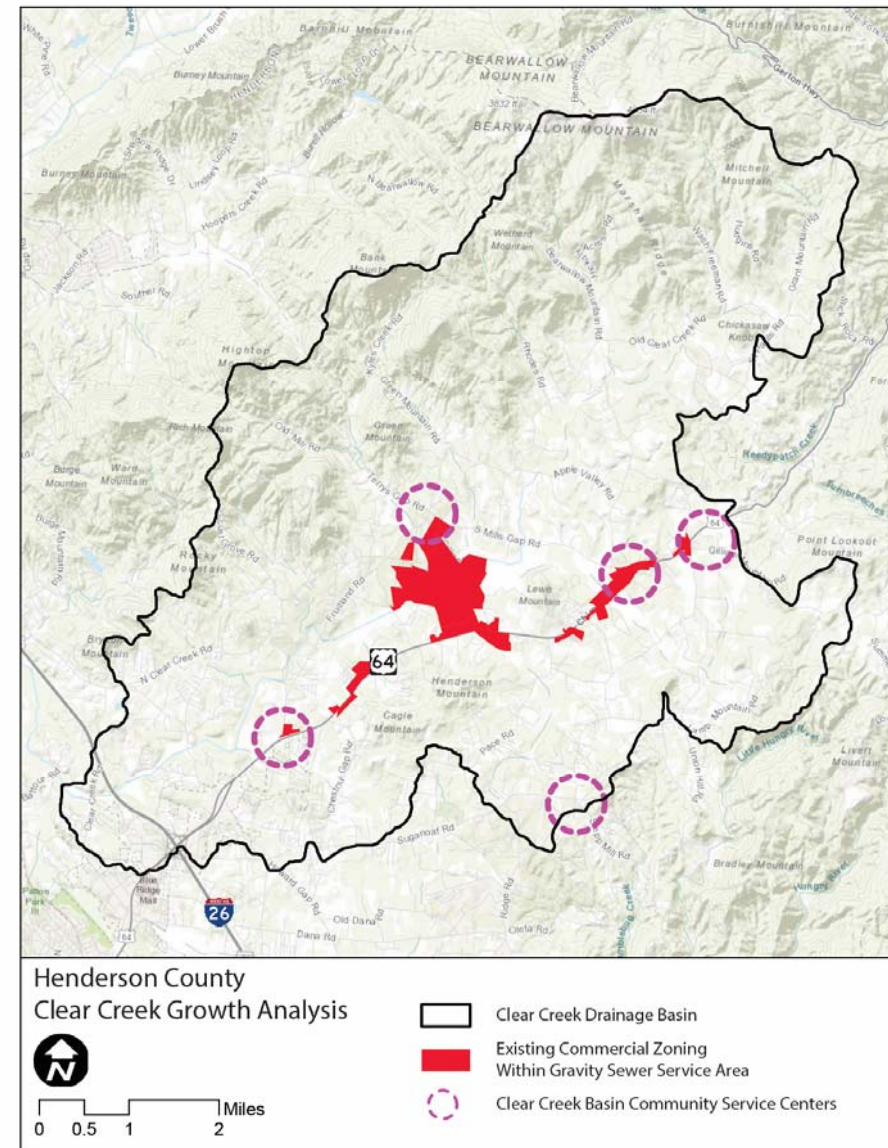


Commercial Zoning and Community Service Centers

Current Commercial Zoning in the Primary Gravity Service Area:

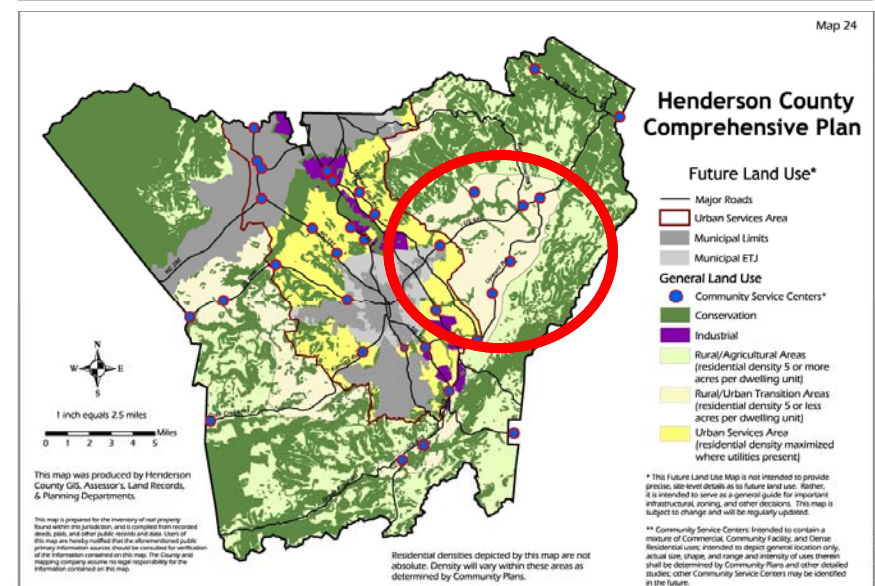
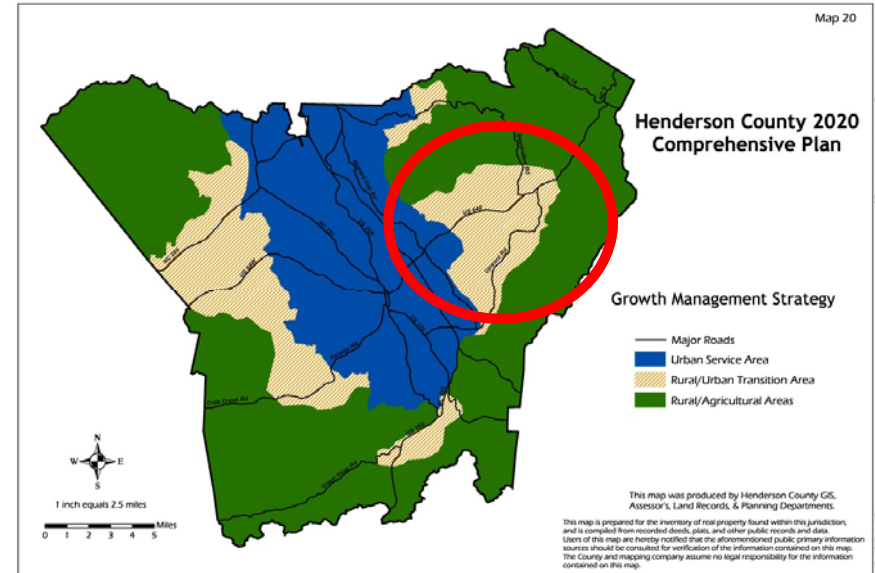
- CC: 49 acres
- LC: 629 acres
- O&I: 35 acres

Community Service Centers defined by the Future Land Use Map in the 2020 Comprehensive Plan



Henderson County Comprehensive Plan

- Development regulations are influenced by the Growth Management Strategy Map and Future Land Use Map.
- The majority of the basin is designated as Rural / Urban Transition Area, with some Urban Services Area designated close to I-26.
- Urban Services Areas – policies favor higher density development.
- Rural / Urban Transition Areas – policies limits residential to 2 dwelling units / acre



Urban Services Area Comp Plan Policies

- “Wide ranges of residential densities will exist. Over the long term, land use regulations and policies should favor higher density development, consistent with natural constraints and the availability of urban services. At the same time, policies and regulations should protect existing less-intensely developed communities”
- “Growth and development will be proactively managed through extensive planning. Much of the USA falls within municipal planning jurisdictions and will be managed by those jurisdictions. Land use planning for areas falling within the County’s jurisdiction should be comparable and compatible in its approach and intensity with planning conducted within the various municipal jurisdictions.”
- “Sewer and water infrastructure investments should be focused within the USA first and foremost. Priority should be given to economic development sites, commercial districts, dense residential areas, schools, and existing areas prone to septic failure within the USA. Investments in sewer and water infrastructure outside of the USA should be made cautiously.”
- “Development within the USA should be accessible by roads which are developed to urban standards, with capacities to accommodate increasingly complex volumes of traffic. Access along roads should be managed appropriately.”

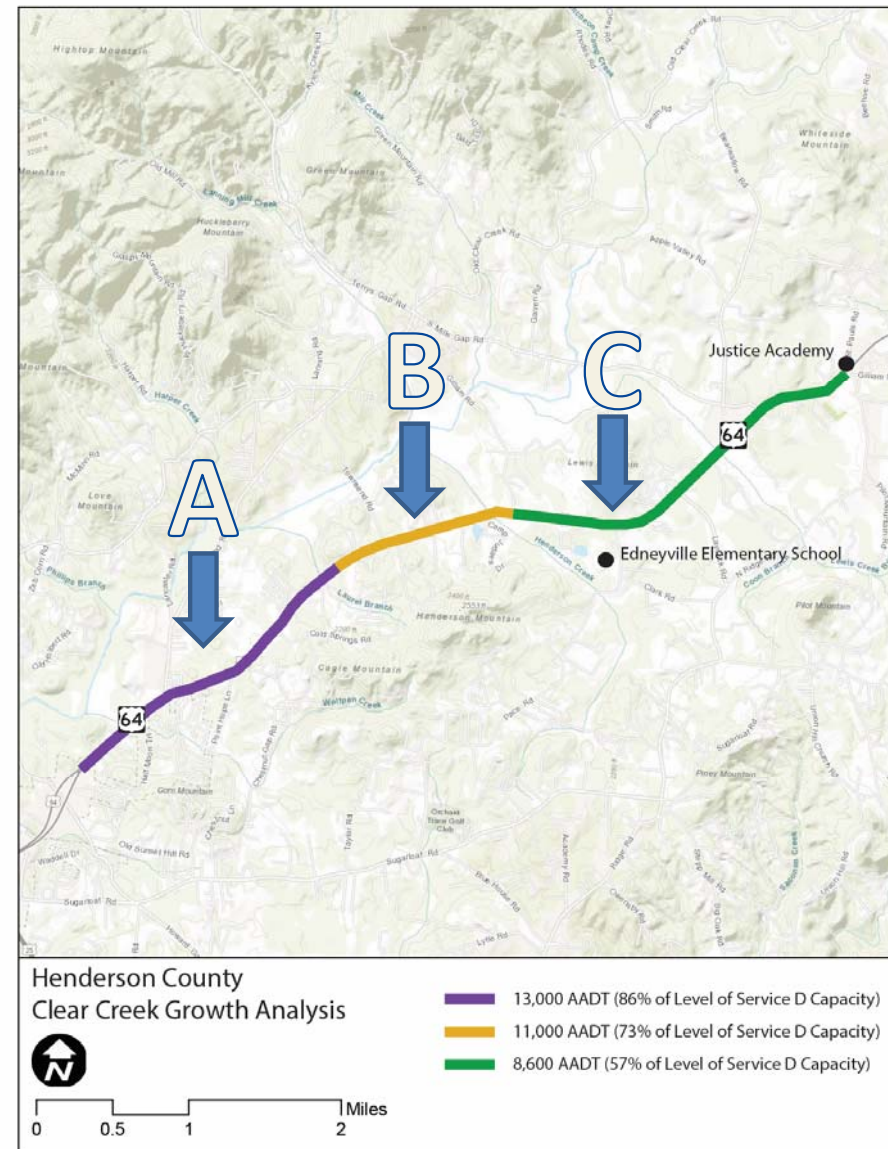
Rural Transition Area Comp Plan Policies

- “As infrastructure is expanded and becomes available, the R2 and the R2MH zoning district (if both water and sewer services are present) should have an average density **no more than 2 units per acre.**”
- “At the present time, most of the RTA does not have sewer or water services, with the exception of Etowah. **Future expansions of sewer and water infrastructure** into the RTA should be consistent with the Sewer and Water Master Plan as envisioned in the Sewer and Water Element of this Comprehensive Plan and **should be timed to coincide with deliberate expansions of the USA.**”
- “Most **Industrial and Regional Commercial land uses should be discouraged,** except in limited circumstances.”
- “The precise extent of **the USA and RTA should be periodically reviewed** in light of any changes in sewer and water capacity or other factors. As urban densities within the USA and development pressures within the RTA increase and **as sewer and water capacities within the RTA are developed, areas of the RTA should be pulled into the USA and allowable densities substantially increased.**”

US Highway 64

Current Level of Service (2016)

- US 64 is the primary transportation route serving the basin.
- Current Traffic / Capacity:
 - **A** - Howard Gap to Prestwood: 13,000 AADT (86% Capacity)
 - **B** - Prestwood to Gilliam: 11,000 AADT (73% Capacity)
 - **C** - Gilliam to St. Paul's: 8,600 AADT (57% Capacity)
- French Broad MPO 2040 Transportation Plan does not identify improvements for any roadways in the basin.



Revenue Generation

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Basis of Estimate

- Parcel data analysis within the study area
- Developed Single Family Lots 1 Acre or Smaller:
 - Mean Single Family Lot Size: 0.575 ac
 - Mean Value/Acre for Developed SF Lots: \$48,700
 - Mean Heated SF for SFDs: 1,681 sf
 - Mean Value / SF for SFDs: \$80.77
 - Mean SFD Building Value: \$137,465

Tax Assessment and Revenue

- Average Assessed Values (building + land):
 - SFD on 0.25 Acre Lot: \$149,640
 - SFD on 0.5 Acre Lot: \$161,815
 - SFD on 1 Acre Lot: \$186,164
- Ad Valorem Tax Generation at Current Rate
 - SFD on 0.25 Acre Lot: \$845 / year
 - SFD on 0.5 Acre Lot: \$914 / year
 - SFD on 1 Acre Lot: \$1,052 / year

Tax Revenue Yield per Acre

- Annual Ad Valorem Tax Yield per Acre
 - 4 DU/Acre : \$3,382
 - 2 DU/Acre : \$1,829
 - 1 DU/Acre : \$1,052

Potential Customer Base

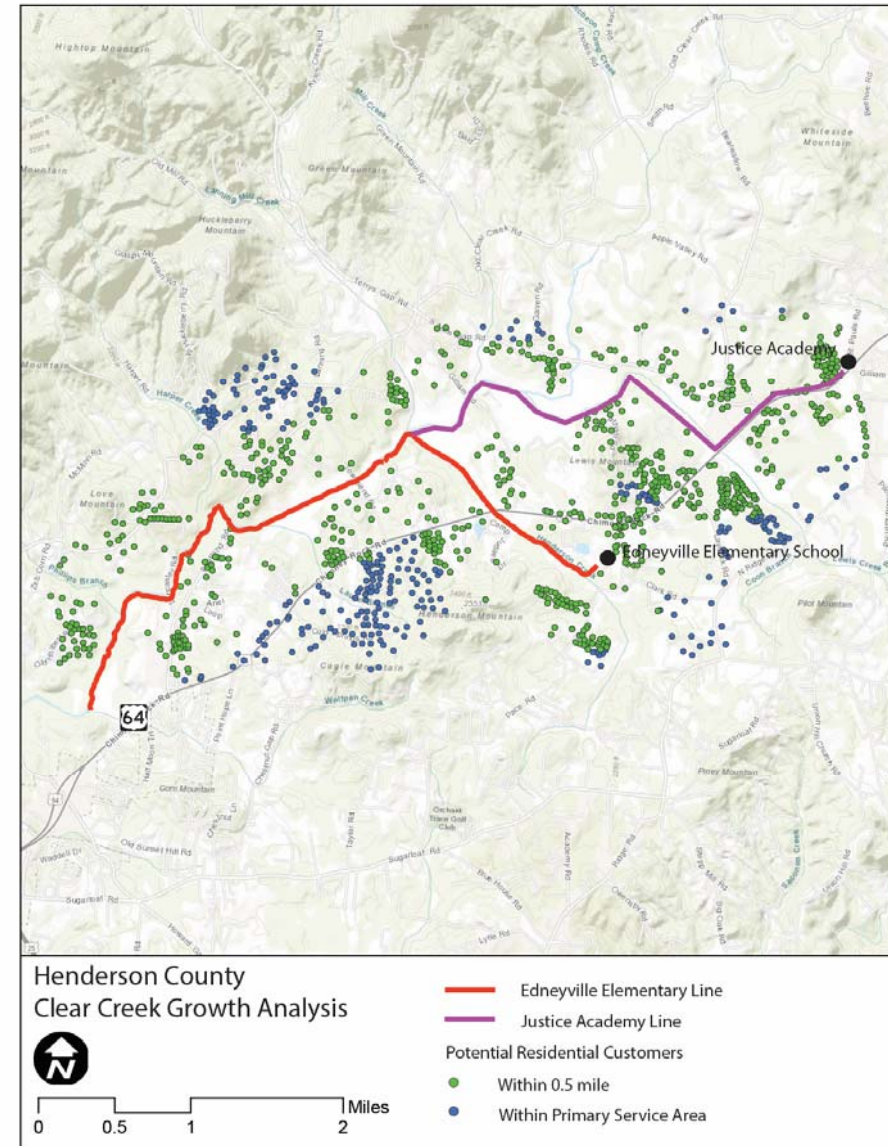
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Potential Residential Customers: Edneyville Elementary + Justice Academy Gravity Option

Potential Residential Customers: 1,050

- Within 0.5 mile: 750
- Additional: 300

Additional collection lines would be required to serve customers not immediately adjacent to the main line



Conclusions

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Conclusions

- The gravity sewer option, particularly with the addition of the Justice Academy extension, provides sewer service to a significant portion of the Clear Creek basin.
- There are generally sufficient land resources in the primary service areas available under either main scenario to accommodate expected growth over the next 20 years.
- The density made possible by sewer should help to conserve rural land resources by concentrating development.

Conclusions

- The Barnwell option may concentrate development more than the gravity option, thus preserving rural land resources, but there may be insufficient land within the primary service area to accommodate an acceleration in development activity over the next 20 years.
- The use of only pressure sewer to serve the school and the Justice Academy will likely not prevent development in the study area. Without the sewer in place to concentrate development, sprawl and leapfrog development patterns are more likely to emerge.

Conclusions

- While orchards make up a significant part of the rural landscape in the study area, they are more prevalent outside of the primary service areas than within them in either of the main options.
- Industrial development in the study area, while potentially feasible, may be constrained by environmental and transportation concerns in the area where it has been planned.

Conclusions

- US 64 is nearing capacity in the western portion of the study area.
- Long range transportation plans do not include any projects to improve the primary highway arteries serving the Clear Creek basin.
- The growth management strategy map should be adjusted to expand the Urban Service Area if sewer is installed in the basin. This should be followed by proactive rezoning of property to align with the growth strategy map in an effort to concentrate development away from the rural portions of the basin.