

Estes Park Planning and Zoning Department  
Estes Park Planning Commission

Re: Application to Rezone 685 Peak View Drive

Planning Staff:

I am writing in strong opposition to the proposed rezoning of 685 Peak View Drive from E-1 to R-1. The basis for my opposition is presented in the sections below. However, I will begin with a discussion of my background and experiences through which my opinions are based.

### Background

I am an Environmental Scientist who has spent thirty-six plus years both domestically and abroad either managing hazardous waste, remediating chemically contaminated land, destroying chemical weapons, preventing or mitigating negative environmental impacts of upstream oil and gas development projects or operations and large infrastructure projects, or decommissioning and restoring a nuclear power plant in an ecologically sensitive location. I am presently engaged in a Department of Defense project in Pueblo and commute to the site there weekly.

My wife and I are full-time residents, though I travel and work away, having relocated from our overseas residence to Estes some 10 years ago. We purchased an existing home on a one-acre parcel from a couple who moved to another state. Two people moved out and two people moved into Estes. There was neither a population increase nor an increase of negative impacts due to our joining the Estes community. Additionally, we manage our property to maintain the natural environment, provide habitat for wildlife, and allow wildlife unobstructed movement.

I have witnessed the wanton disregard and destruction of the natural environment, both in the U.S. and internationally, and unfortunately now in the Estes Valley. Loss of habitat, encroachment and overpopulation of humans and resulting pollution are a few examples of stresses which are resulting in dramatic decreases in diverse ecosystems and wildlife / aquatic populations. The Estes Valley is unique in many ways, from the stunning viewscapes and wildlife while bordering one of the most beautiful national parks in the world. The Town of Estes Park and Larimer County should focus on conserving this rare place, rather than seeking to develop every inch of open ground. I offer a few premises upon which I build my position.

### Premises

Estes is a mountain community, with unique features and several ecosystems that make it different from communities along the Front Range or Plains.

In Estes, the presence of habituated, large mammals, including predators, coexisting in close proximity to humans is a special relationship which should be respected and protected. Wildlife needs space and the ability to move freely or migrate. Protecting wildlife corridors and grazable land is crucial.

This should be understood, but as with most of Colorado, the water supply in the Estes Valley is a limited, finite resource. Increasing the human population in Estes will strain this critical resource.

Air quality along the Front Range has severely declined, to the extent that EPA has required Colorado to develop a State Implementation Plan (SIP) to bring the Front Range into compliance with air quality standards for 8-hour ozone. The Estes Valley experiences inferior quality as well, primarily due to vehicle emissions, particularly during peak visitation periods.

The review of any development in the Estes Valley, whether governed by the Town or Larimer County, should consider Indirect and Cumulative Impacts and the Valley’s Carrying Capacity to continue to support the diversity of wildlife here. (See the Definition section at the end of this document.)

There is a limit to the human population that the Estes Valley can support. The steady increase of population growth in the valley will soon reach the carrying capacity of the valley, if it hasn’t already. The basic equation is more humans equals more negative environmental impacts and a decline in the quality of life for everyone.

Project Analysis

The Statement of Intent proposes “to subdivide the property into 39 single-family lots” with the intent to “build a single-family neighborhood of small, *reasonably* priced houses”. Given the preceding, the following additional data, though an estimate, can be ascertained with assumptions.

Assumptions:

Single Family – 3 persons (U.S. Census Bureau, QuickFacts, Colorado, July 1, 2021, Persons per Household = 2.52)

Vehicles per Family – 2 (DATA USA, Cars per Household = 2)

Hence:

39 properties/households = 117 persons = 78 vehicles

Indoor water usage per household 120 – 170 gallons per day, average 145 (various sources)

39 households x 145 gallons per day = 5,655 gallons per day, 172,006.25 gallons per month, 2,064,075 gallons per year

Household sewage volume estimates will be effectively the same as the indoor water usage

Vehicle emissions per vehicle

Pollutant	Grams per Mile	Grams per Year	Metric Tons per Year	Metric Tons per Year per 78 Cars
Carbon Dioxide (CO <sub>2</sub> )	NA	NA	4.6	358.8
Total Hydrocarbons (HC)	0.330	3795	0.0038	0.29601
Carbon Monoxide (CO)	4.702	54073	0.054073	42.1796
Nitrogen Oxides (NO <sub>x</sub> )	0.686	7889	0.00789	0.61534

Particulate Matter (PM2.5)	0.016	184	0.00084	0.06552
----------------------------	-------	-----	---------	---------

- Assumes 11,500 miles driven
- 4.6 metric tons of CO2 (EPA.gov Greenhouse Gas Emissions from a Typical Passenger Vehicle)
- HC, CO, NO<sub>x</sub>, and PM2.5 Grams per Mile (Bureau of Transportation Statistics, Estimated U.S. Average Vehicle Emissions Rates per Vehicle by Vehicle Type Using Gasoline and Diesel, <https://www.bts.gov/content/estimated-national-average-vehicle-emissions-rates-vehicle-vehicle-type-using-gasoline-and>)

Upon analysis of the proposed project, several significant negative environmental and social impacts will result. It should be noted that several of these impacts will affect many residents of the Estes Valley not in direct proximity to the project location.

### Impacts

Though the recently issued EstesForward Comprehensive Plan indicates otherwise, I will begin with the proposition that Town and County planning departments and leaders appear intent on making the Estes Valley another suburb of Denver, with all the negatives that result from dense human population, i.e., to name a few - increased crime, traffic congestion, and polluted air. I implore The Town to stop trying to urbanize Estes and emulate the Front Range in our Valley. Big Thompson Avenue and North St Vrain should not become extensions of Colfax Avenue nor our neighborhoods like Five Points or Capitol Hill. If my wife and I had wanted to live in Denver, we would have moved there. We did not. We moved to Estes.

A key point in this evaluation of impacts and my expressed opposition to the project is that the argument *is not* development versus no development. At issue is the extent of development which is already allowed and not disputed, which would have impacts, versus the proposed density of development which would clearly have devastating impacts.

The reasons I believe this application should be rejected are due to the following adverse impacts, presented in no order of importance. Given the numerous impacts, I will only provide a brief explanation.

#### 1. Loss of wildlife habitat and impediment to wildlife movement

At present, there is only a single home on the 7.62-acre parcel. The land is vegetated with several mature ponderosa pines, grasses, and shrubs. The land's grasses and shrubs support forage and grazing of our ungulate neighbors, elk and deer. The trees provide shelter and nesting areas for birds. Smaller mammals, such as ground squirrels, dwell there as well and are a food source for coyotes, bobcats, and raptors. All these creatures frequent our neighborhood and property as well. The density of the proposed neighborhood, as visually presented in the site plan, will necessitate the destruction of the overwhelming majority of this wildlife habitat with the high density of the structures impeding the movement of wildlife in the area where they have roamed for decades. Ponderosa trees grow slowly at the altitudes in the Estes Valley. Even if replacements were planted as part of the new development's landscaping, it will be decades before the trees are of a size to provide the services lost from the existing trees. The three "open space" areas appear small and insufficient to support the current wildlife usage.

## 2. Degradation of viewscape

The current views from the property to the Southwest and South are stunning, with Longs Peak majestically looming in the distance to the Southwest and Twin Sisters often glistening in the morning sun to the South. Looking across the property from Devon Way, with the mature ponderosas and open grass and shrubs in the foreground and the surrounding mountain skylines as a backdrop, the views capture the sense of place that is Estes. The current, quaint cabin blends with the setting, not disrupting the views. The existing Koral Heights homes located on Devon Drive enjoy the vistas as do those of us who routinely walk, run, or bike along Devon Drive and Peak View drive. Those who purchased these homes with an understanding of the current zoning of the property, knowing approximately six additional homes might be built there, which may impede views as well, will be deprived of these lovely scenes if rezoning occurs. Interestingly, the Developer does not seem to value this natural beauty as the proposed density and site plan layout indicate the arrangement of the homes are such that none of the new properties will enjoy these scenes either. Perhaps he is blinded from the panorama by the dollar signs of anticipated profits?

## 3. Degradation of the surrounding neighborhoods' peace and tranquility

Our neighborhood, Koral Heights, is across Devon Drive and Peak View Drive. Our home is on Prospect Mountain Road, about .5 miles from Peak View Drive. By in large, our area is peaceful, except for traffic going to a Short-Term Rental (STR) at the end of the road, which is not in our neighborhood, and occasionally dodgy vehicles with occupants who are not residents and who park at the end of the road by the gate to the Bureau of Land Management property. We, our neighbors, and visitors walk the neighborhood, including down Devon Drive, and enjoy the wildlife, lovely properties, and meeting with our neighbors. Though not entirely bucolic, it is a peaceful, mountain setting with a rural feeling. Our and our neighbors' enjoyment of our properties and neighborhood is now in jeopardy. The addition of some 100-plus people, along with their vehicles, will unequivocally upend and disrupt our tranquility from noise, vehicle emissions, and increased vehicular and pedestrian traffic, both on Devon and Peak View, as well as within our neighborhood.

## 4. Loss of Ecosystem Services

Undeveloped land, in its natural state provides benefits to wildlife and humans. See the definition of Ecosystem Services below for more details. In the case of this property, the existing ecosystem provides Regulating and Supporting services. Regulating services provided include plants that clean the air, filter water, support pollinators, and prevent erosion. Supporting services provided include photosynthesis and the role in the water cycle. Given the scope of the development, these services will mostly disappear.

## 5. Stormwater

Stormwater – This 7.62-acre, development will increase the percentage of impermeable surfaces resulting in increased stormwater runoff and stress on downstream receptors, i.e., neighboring properties and watershed drainage. Exasperating existing stormwater management in the Este Valley such that the Town of Estes is considering a Stormwater Utility, including maintenance fees to be paid by residents. (Town of Estes Park, Stormwater Master Plan, <https://estepark.colorado.gov/stormwater>)

The risk of floods in the Estes Valley is significant. The flood of 2013 was not that long ago, and the effects have been long lasting. However, this project is evidence that some memories are short lived. Stormwater management is an excellent example of the need to consider cumulative and indirect impacts from projects, such as this one. This 7.62-acre of mostly undeveloped vegetated land captures stormwater allowing infiltration to replenish groundwater and minimizes flow to lower areas in the watershed. The construction envelope proposed will cover much of the land with structures or in impervious surfaces, thus drastically reducing the vegetated zones and resulting in increased stormwater runoff. And this is only one project which will have cumulative, negative synergistic stormwater impacts in the Estes Valley along with the proposed Fish Hatchery Workforce Housing project, the massive Wildfire Homes project, and the approved Prospector Apartments (Wind River Apartments).

#### 6. Increased negative wildlife / human encounters

The issue here is not with human safety, but the protection of wildlife. Wildlife need space – for breeding, shelter, food, and safe passage. The significant increase in human population within the area impacted by the project, will create increased risks to wildlife through vehicular incidents, poor garbage management practices, and/or direct face-to-face encounters. Wildlife will always lose in these encounters. The current zoning of 1-acre parcels, as is ours, provides sufficient space for safe coexistence. We do not feed wildlife and are cautious with waste so as not to attract wildlife, i.e., bears. Still, we have had the pleasure of watching bears amble through our property. We have also had a glimpse of a mountain lion rapidly traversing our land as well as having a lion kill a deer in a narrow gully in the lower part of the property. Deer and elk frequent our land and graze or lounge in the meadow or under our trees. On two occasions, a Mule deer doe has delivered her young in a secluded spot on our property and hidden the fawns in our rock pile formation. None of these events are possible within the planned project. Wildlife will suffer.

#### 7. Water

Colorado is an arid climate subject to drought. Water is a most precious, limited resource. Due to the poor governance at all levels along the Front Range allowing unfettered, cancerous growth, many communities are faced with water shortages. Water demand is a frequent topic in news articles. An example is from 9News, The Impacts of Urban Sprawl on Colorado's Water Supply, December 6, 2022 (<https://www.9news.com/article/news/local/colorado-news/coloradans-urban-sprawl/73-4661937c-b7a4-433e-866f-1df03612a7d8>) The Estes Valley is not immune to suffering a water shortage. Three sources provide water to Estes Park. These sources are "Glacier Creek, C-BT Project/Grand Lake via the Alva B. Adams Tunnel to the East Portal, and Mary's Lake (emergency only)." The risk of a water shortage is discussed in the Town of Estes Park, Source Water Protection Plan – Public Version, Larimer County, Colorado, April 2021. Section 3.2 Water Supply Demand Analysis states that the present water system serves "an estimated 5,506 potable water connections and approximately 16,722 residents and other users within its service area annually" and "has a surplus average daily demand capacity 5.44 MGD and a surplus average peak daily demand capacity of 3.6 MGD", which would indicate we are not facing an imminent threat. However, the plan goes on to state that "The Town of Estes Park may not be able to meet the average daily demand of its customers if as few as 2 of the water sources became disabled for an extended period of time and may not be able to meet the average peak daily demand of its customers if as few as one of the water sources became disabled for an extended period of time." Population growth and increased demand, from the proposed Peak View development which will result in a usage of an estimated 5,655 gallons per day, or 172,006.25 gallons per month, or 2,064,075 gallons

per year will exasperate this risk, especially when considered as part of the cumulative impacts from the other development projects previously mentioned.

## 8. Sewer

The Upper Thompson Sanitation District (UTSD) wastewater (sewage) treatment plant or water reclamation facility was opened in the 1970s and is at the end of its design life. A recent article in the Estes Park News, which was written by Wendy Koenig, Town of Estes Park Mayor, includes the statement, “Over the years, *steady population growth in the valley*, coupled with stringent water quality regulations have put the plant at near capacity”. (Infrastructure Matters: Turning Wastewater Into Clean Water, November 17, 2022, [https://www.estesparknews.com/estes\\_valley\\_spotlight/article\\_e54bf954-65cc-11ed-af26-4f9ebc27847f.html](https://www.estesparknews.com/estes_valley_spotlight/article_e54bf954-65cc-11ed-af26-4f9ebc27847f.html)) A new water reclamation facility will be constructed to replace the old treatment plant. This now necessary new \$60 million dollar facility will be constructed on 9 acres of presently undisturbed land with construction anticipated in 2023 through 2025. Part of the funding is from customer rate increases, which have already begun. The UTSD FAQs sheet indicates the new plant will “accommodate future growth” and that additional capacity construction will be phased to “coincide with customer growth to minimize financial impacts to current customers”. ([https://utsd.colorado.gov/sites/utsd/files/documents/FAQ%20UTSD%20NEW%20WWTF\\_0.pdf](https://utsd.colorado.gov/sites/utsd/files/documents/FAQ%20UTSD%20NEW%20WWTF_0.pdf)) It may be argued that the proposed development’s sewage volume (roughly the same as water used) has already been accounted for as broader planning for the new facility. Also, the developer is required to pay a System Development Fee (SDF) for each new unit. That is unless the Town Trustees bestow the gift of free connections to ‘encourage’ development. Regardless, the developer can recoup his cost in the sale of the homes, while existing customers cannot. The bottom line is that the developer will reap the financial benefits of the new treatment plant, while the directly impacted neighbors and other residents of the Estes Valley will bear the costs.

## 9. Topography

The current topography of the property is a sloping descending gradient from the North and Northwest to the South and Southwest. The moderate relief allows retention of rainfall or snowmelt within the property thus minimizing runoff. The aesthetics of the terrain in conjunction with the vegetation are just as important. Given the proposed site plan for thirty-nine homes, significant alteration is assured which will significantly and negatively impact these attributes of the land.

## 10. Hydrology

Related to topography and stormwater impacts is subsurface hydrological alteration. The construction of the proposed large-scale project will require extensive excavation which will permanently alter the underlying geology of the property. The effect will be to modify the pathway of subsurface water flows which may result in decreasing groundwater recharge and increasing stormwater runoff. This impact will be minimized if the development were limited to that allowed by the current zoning.

## 11. Traffic congestion

I have no doubt a traffic study will be required as part of the development package for review by Planners. Unfortunately, I believe the impacts of the traffic increase will be underestimated and understated.

In researching this topic, I read a three-article series on congestion, written earlier in 2022, published on the website Planetizen, which is a “fiercely independent platform that creates, curates, and amplifies stories and resources to inform planning and people passionate about planning”. I found the articles quite informative. (<https://www.planetizen.com/features/116834-planning-and-complicated-causes-and-effects-congestion>, <https://www.planetizen.com/features/116914-how-planning-fails-solve-congestion>, <https://www.planetizen.com/features/117153-planning-congestion-relief>)

Take aways from the articles:

What is congestion? – “Congestion is caused by a supply and demand imbalance: more cars are on the road than space on the road allows. Depending on the time of day, *and the surrounding population and workforce densities*, and the conditions of the road and its intersections, demand for the roadway can increase up to and beyond the point of saturation—when the volume of cars using the road is greater than the capacity of the road.” Note the reference to “surrounding population and workforce densities” infers a conclusion that increased population and dense development are a cause of congestion.

Congestion Reduction Fails – “Projects and concepts of all kinds are touted by planners, engineers, politicians, and the public as congestion mitigation tools despite centuries of evidence to the contrary. Not all of these false promises are created equally: some projects have additional benefits, aside from congestion relief. Other projects, however, manage something worse than failing to reduce congestion as promised: they also fail to account for negative externalities—the social, economic, and environmental problems they create.” The context is in relation to additional road capacity and road construction projects. So, widening Peak View Drive is not a mitigation measure to justify increased vehicles on the road.

Highway and Road Widening – “You can’t build your way out of congestion.” This sounds like “The Loop Project”, doesn't it? The location of this project is well away from the town proper or amenities so that driving is mostly a necessity. Peak View Drive has very narrow shoulders, no bike lanes, and is not connected to the pedestrian/bike path on Highway 7. These factors also encourage driving. Additionally, Peak View Drive is a bypass to Mary’s Lake Road, which sees a substantial increase in usage during the tourist season. Any increase in traffic will increase risks to wildlife, cyclists, and pedestrians in the project area.

Planning for Congestion Relief, introduction paragraph - “The only way to reduce congestion is to drive less.” This straightforward, logical, and truthful statement points to another fact. If there are less drivers and cars available to drive, then there is less ‘driving’ and therefore less congestion. The proposed development with some additional 78 vehicles will not only increase congestion, both on the adjacent roads of Peak View Drive, Devon Drive, and Highway 7, but also throughout the valley.

One of the arguments that dense development is “needed” in Estes is that so people who work here can live here. This sounds reasonable *if* all working adults are employed in Estes but is doubtfully realistic. As with my wife and I, she works in Estes while I commute elsewhere. So, in reality, any increase in population in Estes will result in increased congestion, both in the Valley and on the roads serving the Valley. This raises the matter of what has Estes done to work with Larimer County and surrounding communities, i.e., Lyons, Longmont, and Boulder to establish a routine bus transit system serving Estes? The Regional Transportation District routes include the mountain community of Nederland / Eldora. If Estes businesses ‘need’ employees, then surely the demand for a bus transit system will cover the costs? This system could also serve to bring tourists from the Front Range as well, the same as the Bustang

seasonal service. What about 'park-and-ride' facilities in Loveland and Lyons to encourage carpooling? Has this been explored? The proposed project cannot be justified with the argument of people who work here should live here unless other transportation alternatives to and from the Valley have been exhausted.

## 12. Light Pollution

Staring at the night sky, covered with stars, and perhaps accompanied by the moon, is a benefit of living in a rural setting away from city lights. The current condition of the property supports this magical scene for the property itself and neighboring properties. Presently, only the streetlights at Prospect Mountain Road, Twin Drive, and Longs Drive hamper the view of the night sky in the area near the property. The EstesForward Comprehensive Plan includes Goal NE1.2 which states: "The Town and County ensure that new development minimizes the impacts to visual quality within the Valley, including viewsheds of the mountains and *protection of dark skies*." One of the town's recommended actions, NE 1.A states: "*Maintain and strengthen current code requirements for dark skies, obtain grant funding, and develop an incentive program to replace non-compliant fixtures.*" (Estes Forward Comprehensive Plan, December 2022)

The proposed rezoning and this specific development are diametrically opposed to protecting or enhancing "dark skies". Even if the developer were to require the design and use of dark sky compliant fixtures, the sheer number of housing units proposed will overwhelm any design or fixture features. Additionally, if streetlights are included within the subdivision, this lighting will act synergistically with housing lighting and compound the negative impact. Incidentally, the developer should be well aware of this issue since he was a participant in the writing of the Comprehensive Plan.

## 13. Noise

Anthropogenic (human) activity causes noise. More activity results in more noise. There is a direct correlation. Much of the noise generated is from vehicles. The as-zoned density would be twenty-one people with fourteen vehicles. The rezoned density would be 117 people with seventy-eight vehicles. This is an extreme difference from which the noise will disturb wildlife and reduce the ability of the surrounding neighbors to enjoy their properties. Though temporary, the construction of the property, to include land grading, installation of utilities and streets and the subsequent building of residences will result in uncomfortable to annoying noise, not only to adjacent neighbors but throughout the surrounding neighborhoods.

## 14. Air Pollution

The primary source of air pollution is vehicles. The effects of an additional seventy-eight vehicles will not be limited to or contained in the footprint of the development but will impact the Estes Valley airshed. The increase of pollutants will further degrade the Estes Valley air quality. Based on the table presented earlier in this document, seventy-eight vehicles will emit approximately, in metric tons, 358.8 carbon dioxide, 0.29601 total hydrocarbons, 42.1796 carbon monoxide, 0.61534 nitrous oxide, 0.06552 particulate matter (pm2.5). As the development location is significantly far from town services and the bike/pedestrian path adjacent to Highway 7, walking or cycling to minimize driving is unlikely.



To make a point about the deleterious effects of vehicle emissions, anyone who has pursued athletic activities, i.e., walking, running, or cycling along the bike/pedestrian path on Highway 7 or Highway 36 can attest to the annoying exhaust gases from adjacent traffic.

#### 15. Follow the Money

Though not directly related to the technical arguments for rejecting the proposed rezoning request, other factors are unfortunately at play and demonstrate a possible systemic failure of the community development review and approval process. My concerns are as follows:

During the first neighborhood meeting in response to a question regarding why the Developer chose to propose this dense neighborhood, the Developer stated he was encouraged by the Town to develop a dense housing project. If I understood this correctly, this is inconsistent with the Comprehensive Plan for at least two reasons. The first is that the property remains within an estate area. The second is that the proposed development does not address the issue of affordable housing. It would seem this is encouragement to build dense projects only for the sake of increasing density. I truly hope this desire was not expressed by the Town or Trustees as this would be a slap in the face to all those who participated in the Plan's creation.

CMS Planning & Development, Inc., aka Frank Theis, purchased this property knowing full well that the existing zoning is E-1. Changing of zoning of this parcel to accommodate only the developer makes a mockery of the Estes Park Zoning code. The code means nothing if any well-heeled and well-connected Developer can simply request a zoning change without justification; and no – the desire to increase profits is not justifiable. Neighbors who purchased and developed their properties based on the existing Zoning expecting a certain neighborhood characteristic and features may be ignored. "CMS" will profit handsomely to the detriment of others. Additionally, the optics of a current Estes Park Comprehensive Plan Advisory Committee county-non voting member who is also a Larimer County Estes Valley Planning Advisory Committee Board member who also happens to be the Developer seeking this rezoning do not instill confidence in the application review and approval process. I find it incredulous that the Developer spend \$1.2 million on this property without "socializing" the rezoning request and development plan with the review and approving authorities and without some assurance of the rezoning request's approval. The term "conflict of interest" comes to mind.

Unfortunately, the review of rezoning or development requests that increase the number of structures built creates an ingrained conflict of interest for the Community Development staff in the form of more development can lead to increased job security. A comparable situation exists as a conflict of interest for the Town government leaders as Town growth could be deemed good for their careers in the form of greater population, increased responsibility, prestige, and justification for increased salaries. I want to believe these factors will not come into play with this rezoning application, but I am nonetheless concerned.

#### Conclusion

In closing, the request for rezoning from E-1 to R-1 should be summarily rejected. The environmental, social, and safety impacts are extensive and would devastate the surrounding neighborhoods. The Developer has no meritorious justification for this change. Approval of the rezoning will be counter to the tenants in the EstesForward Comprehensive Plan and an insult to those who put forth tireless effort to seek consensus on a positive path forward for the Estes Valley's future. Do not allow this senseless

exploitation and destruction to occur solely for the profiteering motive of the Developer and the benefit of a few to the detriment of all. Reject the request!

Thank you for considering my comments. Please do not hesitate to contact me with any questions.

Regards,

Joe W. Dowdey  
1220 Prospect Mountain Road  
Estes Park, CO 80517  
[joedowdey@yahoo.com](mailto:joedowdey@yahoo.com)  
Mobile: 970-779-1308

### Definitions

Carrying Capacity - The carrying capacity of a biological species in a particular habitat refers to the maximum number of individuals (of that species) that the environment can carry and sustain, considering its geography or physical features. (<https://www.biologyonline.com/dictionary/carrying-capacity>)

Cumulative Impact (Effect) - Cumulative impact is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR § 1508.7) (NEPA and Transportation Decisionmaking, Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process, <https://www.environment.fhwa.dot.gov/nepa/QAimpact.aspx>)

Ecosystem Services - An ecosystem service is any positive benefit that wildlife or ecosystems provide to people. The benefits can be direct or indirect—small or large. The Millennium Ecosystem Assessment (MA), a major UN-sponsored effort to analyze the impact of human actions on ecosystems and human well-being, identified four major categories of ecosystem services: provisioning, regulating, cultural and supporting services. (The National Wildlife Federation, Ecosystem Services, <https://www.nwf.org/Educational-Resources/Wildlife-Guide/Understanding-Conservation/Ecosystem-Services>)

Indirect Effect - Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR § 1508.8) (NEPA and Transportation Decisionmaking, Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process, <https://www.environment.fhwa.dot.gov/nepa/QAimpact.aspx>)