Development Impact Analysis:

Mountain Crossing

October 2001

Town of Pagosa Springs, Colorado

Prepared by:

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INTRODUCTION & IMPORTANT CONCEPTS

Development impact reports enable Towns and Counties to make *full cost accounting* of the impacts of new growth and development on local economies, public infrastructure, fiscal resources, revenues, land use/physical attributes, and some environmental and social resources.

This development impact report analyzes the proposed Mountain Crossing Master Plan.

RPI's reports may be accompanied by an on-site presentation of all findings at a publicly noticed meeting if requested by community staff or elected officials.

Conducting development impact analysis is a complex and time-consuming endeavor. However, the payoff for determining the costs of growth will outweigh the up front effort and expense.

Development impact reports are a useful tool for local governments and citizens alike because they allow communities to engage the following issues:

1) Calculate the incremental costs of growth.

   Understanding the costs of growth at its fundamental level is the most flexible way to calculate the true costs of growth both now and in the future. This report contains the building blocks with which to understand and track future growth in your community. Once the costs generated by a single residence or commercial / industrial land use are known, simple arithmetic can be used to determine the cost of any number of units. Within this report costs are be broken down into residential /non-residential units, (peak) population, and vehicle trips. Each is thoroughly explained in the appropriate section of this report.

2) Link land uses to fiscal realities

   One of local governments most powerful tools is the ability to exert influence over land uses. Because of the variable costs associated with different types of land use, governments can, given quality information, perform cost and benefit analysis of proposed uses. Cost benefit analysis is equally important when considering comprehensive planning, zoning and/or rezoning of land.

We know that certain types of land use are more intense than others and consequently we expect them to have greater impacts. For example, the average large grocery store generates far more vehicle trips, public safety calls, and solid waste than virtually any single family home. Clearly, this is a high intensity land use. On the other hand, large grocery stores can produce significant amounts of tax revenue, perhaps offsetting their costs. If our criterion is simple fiscal contributions, a grocery store may come out far ahead of single-family homes in a cost-benefit analysis. Of course, the financial "bottom line" is not always the single determinate in community decisions concerning land use. However, in many ways, development impact reports help us to quantify some quality of life issues.

Many people would agree that traffic jams, high crime rates, or not having enough clean drinking water represent serious quality of life issues. Unfortunately, many of these conditions arise when Towns or Counties grow faster than public, and often even private, services and infrastructure can service them. Consequently, services and infrastructure tend to quickly degrade, creating backlogs, which are difficult to rebound from.

Another common phenomenon in the rural west is the dis-aggregation of industrial, residential, and commercial sectors between jurisdictions. In other words, houses are found in one Town (or in the unincorporated County), shopping in another, and the jobs in yet another. An example of this might be the relationship between Ridgway, Cortez, and Telluride *or* Aspen, Carbondale, and Glenwood Springs. These sprawling economies foment a host of varying impacts that are unique to each community—not the least of which is increased traffic—all of which affect our everyday lives.

Frequently, planning and zoning takes place using only experience and intuition. While these are certainly important components of quality planning, RPI believes that comprehensive and accurate information is a critical element that is often missing. Ultimately, community involvement, and sound judgment combined with accurate, objective information will yield the best results for long-range Town and County planning.

3) Establish baseline information

In order to chart a course for the future, a Town or county must know where it is right now. An useful component of development impact analysis is the establishment of current Level of Service (LOS) information concerning local government services and infrastructure. Typically, service levels are established on a per-capita basis. For example, parks may be related in terms of acres per capita or library items as volumes per capita. While as numbers these may seem somewhat abstract and dry, they serve two important functions. First, they are an absolute, quantitative

description of the service a typical citizen receives from any public good. Clearly, a library with 100 books serving a population of 10,000 is providing poor service to the community. Alternately, a library that holds 10,000 books for every citizen is going to provide a tremendous level of service. Likewise with parks and open spaces, or fire protection. Higher levels of service in administrative departments often lead to better capacity to deal with day- to-day issues as well as the ability to make long range plans and freeing up staff to generate funding for ambitious community goals.

This report not only reveals existing conditions in the community now, but also makes comparisons to other localities and/or national standards---providing some context of where it is now and where it may go in the future.

4) Lay the groundwork for fees and services

Development impact analyses are meticulously generated from the most current and accurate information available. When the cost of growth is realized, local government may want to take steps to mitigate some of the impacts through fees and taxes. Because the *incremental* costs of growth is demonstrated, not all of the per-unit cost numbers can, or should, be converted into fees and taxes. To do so requires an additional step that involves identifying: who is going to bear the tax burden, for what, how much is being contributed by other mechanisms, and for how long. However, given the establishment of the base numbers found in this report, this step is a relatively simple one for many departments and services. Please be aware, that road and street costs are an exception to this rule and often require significant additional work and analysis.

Important Concepts to Understand

It is imperative that two simple concepts be thoroughly understood prior to examining the results of this report.

1) Level of Service (LOS)

The idea of level of service will recur throughout this report. A simple analogy serves to illustrate the concept. Suppose that you entered a restaurant with a small kitchen, two tables, and two waiters; you sit at one of the tables and begin dinner. You would expect, given the ratio of waiters to tables, that the service be good. Now consider that you enter the same restaurant a week later, with the same kitchen and the same two waiters, to discover that they have added one hundred additional tables and that the restaurant is packed with people. Certainly, after having been seated, you would expect a significantly decreased level of service from

the two waiters. Of course, the same happens with provision of government services and infrastructure. If new growth is not accounted for in police, fire, health, sewer and a host of other services while population is being added, we should expect to see a decrease in our overall level of service. Meaning, that perhaps we are stuck in traffic more often, our parks are more crowded, we must wait weeks to see a doctor, that public safety services are slowed, or that our water use is limited to certain times of day.

Level of service also allows the community to see where it stands in relation to other communities or even against national standards. It is a measuring stick from which the community can decide to increase or decrease its existing service. For example, your community has police service that is higher than the national standard, but your park system does not equal that of other, similar sized communities. You may decide to de-emphasize funding priorities for law enforcement and instead focus on growing a park system, while imposing a fee structure that ensures that new growth and development will not degrade the law enforcement that you currently have.

2) Projections vs. Forecasting

Projections and forecasts are often mistaken for the same, however this is inaccurate, and a distinction between the two is particularly important when considering development impact analysis.

RPI typically uses projections in its methodology. Projections are essentially an if-then statement about the future. If variable x grew at ten percent over the last ten years *and* the next ten years are relatively similar *then* variable x will continue to grow at 10 percent. Strictly speaking, projections are never wrong because they simply make the assumption that a trend observed over time will continue into the future. In fact, projections are often extremely accurate, particularly over 5-15 year periods. Because projections are based on historical trends, they take into account the typical ups and downs over time. For example, unemployment observed over the last ten years would have been high in the late eighties and early nineties, and quite small in the late nineties – a typical business cycle. An average taken between 1985 and 2000 would reflect this and the consequent projection into the next fifteen years would reasonably predict the same.

Forecasts represent a significantly different concept. They are a judgmental statement that represents a best guess about future conditions. Forecasts typically utilize a wide array of disparate variables and then combine them with the forecasters expertise and experience to generate a "prediction" of future conditions. In certain situations, forecasts can

certainly be useful, however, they may be inappropriate for conservative fiscal forecasting that will be used to make policy decisions today. Why? Would a town be wise to gear all of its current budgeting toward servicing a ski resort that may or may not develop? Probably not, there are simply too many variables involved and it may be impossible to make and accurate prediction. Unfortunately, unless there are solid reasons to believe a development of a certain type or kind will occur, projections offer the most stable base upon which to base future budgets. Finally, forecasting methodologies may vary widely, making it difficult for third parties to understand how results are achieved.

Virtually all of RPI's numbers are predicated on projections. In some cases the projections are modified. For example, RPI may modify the number of vehicle trips down from national statistical averages to account for higher rates of pedestrian activity.

Please do not hesitate to call Rural Planning Institute for clarification or with questions concerning any element of this project.

EXECUTIVE SUMMARY & FINDINGS

Purpose

This report performs a fiscal cost and benefit analysis of the Mountain Crossing. This analysis considers the development in purely fiscal terms and from the perspective of its impacts on public sector product and service provision.

Summary

Mountain Crossing possesses a relative balance of both commercial and residential development components. However, due to the large scale of the development and current tax structures – it is unlikely that the revenues generated by Mountain Crossing will cover either the operational or capital facilities costs associated with maintaining the Town of Pagosa's current level of service standards.

Because non-residential, residential, daily vehicle trips, and population are the foundation of an impact analysis, the new units added by Mountain Crossing are summarized in the table below.

	New from Mountain Crossing	% Increase Over Current Quantity
Housing Units	304	41%
Population	722	45%
Non-Residential Square Footage	287,200 (sq. ft.)	36%
Average Daily Trips	3868	41%

Although residential development returns some revenue in the form of property tax, an accurate working assumption is that residential development rarely covers its cost to the public infrastructure. Consequently, analysis typically turns to commercial development to boost revenue streams and cover total development costs both in terms of initial capital outlays and ongoing annual operations costs. The table at right summarizes the annual revenue projections

Mountain Crossing Annual Revenue Projection (in Constant 2000 dollars)		
General Fund 1% Sales Tax	$	154,031
Capital Improvements 1% Sales Tax	$	154,031
Property Tax	$	15,015
Fees and Fines	$	54,225
Hwy Users Tax	$	28,410
Other Taxes	$	20,933
Other Revenue	$	15,206
Total	**$**	**441,851**

for the Mountain Crossing Development at buildout.

The next logical step is to analyze costs both in terms of one-time capital expenditures and ongoing operations costs for the various departments and services that will be impacted by the development. The table below summarizes the impacts to City general fund departments in this manner.

Department	Annual Operations Cost of Maintaining Current LOS for Mountain Crossing	One-Time Capital Improvements Cost of Maintaining Current LOS for Mountain Crossing
Administration	$ 150,677	$ 159,507
Streets	$ 111,594	$ 274,677
Police	$ 156,949	$ 205,082
Court	$ 44,056	$ 54,660
Parks	$ 58,996	$ 1,852,626
Total	**$ 522,272**	**$ 2,546,552**

The table below summarizes the ability of current revenue streams to cover the necessary capital improvement costs.

Mountain Crossing Capital Improvements Fiscal Summary	
Annual Capital Improvements Sales Tax Revenue	$ 154,031
Total Capital Improvements Cost of Maintaining Current LOS for Mountain Crossing	$ 2,546,552
Number of Years of 1% Sales Tax Necessary to Pay for Capital Improvements	17

Another factor germane to the straight fiscal calculations is the proximity of the development to existing services. For example, it may cost as much as $1 million per mile to lay sewer and water lines. Police and fire services will not need to build annex stations because of the development's location to existing headquarters. Road impacts will necessarily be less for this relatively dense development close to Pagosa's core. Overall, numerous studies[1] have found repeatedly that dense development near city cores costs less than dispersed development that is far from existing service infrastructure.

For a department-by-department review of this reports basic findings, consult the bulleted lists below.

[1] These studies include the "Costs of Sprawl: Detailed Cost Analysis" performed by the Real Estate Research Corporation sponsored by HUD, OPM, and the EPA. Other studies too numerous to list here have drawn, similar, general conclusions that dispersed development costs public infrastructure more than denser developments that are proximal to existing infrastructure and services.

Findings by Department

Administration

- Maintaining the current level of service for administration for the proposed Mountain Crossing at buildout will take two additional administration employees for an estimated cost of $150,000 per year.
- The 'buy-in' cost for Town Hall space for those employees is almost $160,000.
- Failure to increase administration resources as Mountain Crossing develops will result in a decline in the level of service for administration for the entire community

Streets

- Trips are the fundamental demand unit for measuring impacts on the streets system
- To maintain the current LOS each additional daily trip generated by development in Town costs $29 dollars/year for streets operations. Mountain Crossing is expected to increase traffic in Town by 41% over its current level.
- Maintaining the current level of service for the additional traffic generated by Mountain Crossing for streets operations will total $111,500/year
- Mountain Crossing prompted street improvements will call for a one-time expenditure of about $275,000.

Police

- The current level of service for Police officers per capita meets national standards
- Both the residential and commercial components of Mountain Crossing will generate additional demand for law enforcement
- Maintaining the level of service given the projected population of the proposed Mountain Crossing will require an additional 3-4 police officers for a total cost of over $150,000 annually
- The one-time cost of outfitting these officers with vehicles, equipment, and Town Hall space should cost just over $200,000
- Failure to increase expenditures in proportion to the amount of growth expected at Mountain Crossing will result in a decline in the level of service in Pagosa to well below national standards

Municipal Court

- Maintaining the existing LOS cost the court $24/yr for each new resident in Pagosa Springs, while each increment of non-residential activity (non-residential trips) costs $9.
- Additional court cases coming out of the Mountain Crossing development are expected to cost about $44,000 annually, and $54-55,000 to buy-in to the existing capacity at Town Hall

Parks & Open Space

- For community parks and open space, Pagosa exceeds local and regional standards, but for athletic fields, Pagosa falls short
- The conceptual 13 acres set aside for parks and open space for Mountain Crossing certainly meet the 5% lands for public purposes standard in the subdivision regulations, but falls short of maintaining the current LOS
- At full market prices, the ultimate cost of maintaining the current LOS is quite high ($7.2 million)
- While this analysis calculates the true market cost of acquiring parks, trails, and open space, this process, perhaps more than any other type of infrastructure building, allows a whole range of flexible tools that can bring the costs down significantly. One of these tools is to require actual 'in fee' land dedications by sub-dividers to the Town, or cash in lieu specifically for parks, open space, and trails. Plans are currently underway to develop and athletic complex to meet this shortfall.

Fire District

- If development in the County and Town continue as they have, and the Fire District does not procure additional funds, the community will most likely experience a decline in the level of service from the Fire District. This may translate into a decrease in the ISO insurance rating for the district at large
- Currently the Fire District intends to go to the voters with a proposed mill levy increase to pay for capital facility upgrades. Because the operations mill levy does not seem to cover the costs of maintaining the level of service for a relatively dense, high-value development (Mountain Crossing), it may be worth asking for a general fund increase as well
- In the event that the voters deny the mill levy increase, the Fire District should consider conducting a legal feasibility study for proposing that Archuleta County and the Town adopt Fire District impact fees applied to new development to pay for the cost of Fire District capital facilities

School District

- Mountain Crossing property will generate enough property taxes to cover the local share of the cost of educating students created by the development
- To secure land for future school facilities, the School District could propose a land dedication/cash in lieu for school land to the County and Town. Currently Pagosa has a 5% land dedication for public purposes provision in their subdivision regulations. However, this section allows that this land be on sight open space. Consequently, Schools are not likely to get any land from Town and County development without a school land dedication requirement. A relatively simple school land dedication and cash in lieu study with the proper political support may could pay off greatly as the Town becomes more developed and land becomes increasingly expensive

Library

- While library officials have done remarkably well with a limited budget in the past, without additional funding sources, the Library will most likely offer lower service levels, in terms of circulation items and the library building itself as well as in terms of patron assistance at the circulation desk
- The library may consider partnering with the Fire District to help convince the County and Town of the merits of a comprehensive impact fee for public capital facilities. While more equitably assigning the cost of growth to the beneficiaries, an impact fee for library development would, to a certain degree, relieve the operating budget from large capital outlay line items, allowing the general fund to be directed towards operation. The district may also consider some form of user fees attached to circulation cards that could also help pay for new books and an addition to the existing library building.
- The library may want to consider partnering with the school district in the provision of resources to compensate for decreased levels of services

Water

- The average per capita water usage in the water district is nearly six times the national average – over 400 gallons per month
- This high usage probably reflects the use of treated water for irrigation
- The district, Town, and County are making efforts to mitigate this high usage with conservation campaigns, and the development of raw water systems
- A fully built out Mountain Crossing will occupy approximately 9% of the snowball plants total capacity during off peak seasons and nearly twice that during peak seasons. Again, much of the peak use may be mitigated

by the development or utilization of a raw water system or existing irrigation rights
- There is some disparity between the cost to treat a gallon of water and the fee charged – the water district may consider either raising current fees or lowing the existing monthly allotment (i.e. 10,000 gallons)

Wastewater

- Existing plant capacity is being compromised by significant infiltration into the lines
- Mountain Crossing will occupy approximately 14 percent of the plants capacity during off peak seasons and nearly 19 during peak seasons
- Commercial development at mountain crossing accounts for the largest component of wastewater production
- The existing rate structure for wastewater does not accurately reflect the total cost of treatment – however the remaining difference is spanned by revenues from the earmarked mill levy.

GENERAL METHODOLOGY

The methodology used by RPI Consulting to conduct development analysis consists of the following five steps:

1. Demand Unit Measurement and Projection
2. Determining the Proportionate Share
3. Determining the Current Level of Service
4. Calculating the Cost of Maintaining the Current Level of Service Given the Projected Demand Units
5. Revenue Comparisons and Fiscal Summary

This basic approach applies to each department or special district included in this analysis. Following is a more detailed explanation of each step.

Demand Unit Projection

Demand units are the units of growth that generate additional demand for public facilities and services. Demand units are different for different departments and/or special districts, depending on the nature of the service and facilities provided. For example, housing units are used for calculating increased demand on schools. School districts will usually experience marked increases in the number of students when there are increases in dwellings for families, that is to say, housing units. Similarly, increased demand for library services, materials, and facilities is related to the overall population. More people translates into more library users, so population is a demand unit for calculating additional costs on the library. Non-residential demand units are typically defined in terms of square footage, but there are some minor exceptions.

In general, the process involves 1) choosing a demand unit, 2) measuring the current number of demand units, and 3) projecting the demand units generated by the proposed development.

Proportionate Share

RPI development impact analyses assign the cost of development to specific land uses. This requires a determination of what proportions the residential and non-residential portions of the projected growth will cost various departments and districts and to subtract out portions of the cost that are not directly related to the development. For example, a police department responds to calls in specific places, some of which are residential, others that are commercial or institutional, and others still that are simply on the highway cutting through Town and have no tangible connection to specific

development. Accurate projection of the increased demand generated by a development with a certain amount of residential and non-residential development first requires a known proportion of how the department or special district's resources get directed to residential, non-residential land uses, as well as to areas unrelated specifically to land use (such as highway pass-through traffic). Establishing these numbers represents the proportionate share.

Calculating the Level of Service

Level of Service (LOS) calculations are dependent on having the current demand units for a department or special district and the breakdown of how its resources get divided between residential and non-residential units (i.e. proportionate share). The level of service (LOS) is defined as the amount of resources (employees, dollars, sq. ft., library items, etc.) per demand unit, and is expressed both in terms of day-to-day operations and maintenance and in terms of capital facilities (buildings, equipment, library circulation items, etc.). After the proportionate share has been applied to the resources, LOS can be expressed as a cost, number of employees, sq ft. of space, etc. per demand unit. This is the fundamental measure of the incremental cost of growth. For example, the LOS for administration operations in Pagosa Springs is 1.6 administration employees per 1000 population and .3 employees per 100,000 sq. ft. of non-residential space. These employees can also be converted into simple dollar costs.

Projecting the Cost of Maintaining the Current Level of Service Given the Projected Demand Units

The incremental cost of growth, that is, the cost per demand unit, is multiplied by the projected demand units to obtain projected cost of maintaining the current level of service for the projected demand units.

Revenue Projections and Fiscal Summary

In the final step, revenues generated by the projected or proposed development are projected and compared to the costs. Revenue projections are all specific to the type of revenue and methodologies are explained throughout. At this stage it becomes evident whether the development will pay its way to maintain the current level of service or if the LOS will inevitably decline unless additional funding mechanisms are engaged.

OVERVIEW OF THE PROPOSED MOUNTAIN CROSSING PUD

The Mountain Crossing Subdivision proposal includes 96 acres of land located on the southeast corner of the SH160 and SH84 intersection, often referred to by locals as the old sawmill property. The proposal includes 304 residential units and 243,200 sq. ft. of commercial development, which includes 116 lodging units. **Figure 1** lists the proposed commercial uses and intensity. **Figure 1** also includes the estimated jobs generated by the commercial development calculated using the results from a 17 community employer survey recently conducted in Colorado[2]. The jobs created by the proposed commercial development will prove important for calculating revenues later in this report. The jobs, and dollars brought into the community by commercial activity, in addition to having fiscal implications for public services and facilities, also have significant economic implications. For an analysis of the economic implications of the proposed development, refer to **Appendix A**. **Figure 2** lists the proposed residential uses, the number of units, and the projected population occupying those units.

Figure 1. Proposed Commercial Uses

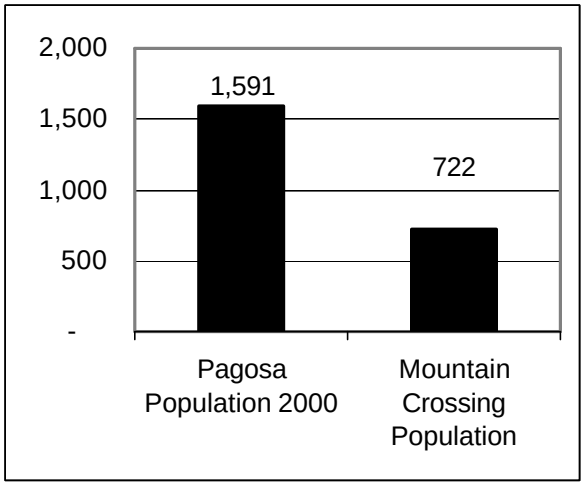
	Sq. Ft. or Units	Units (if applicable)	Jobs
Auto Sales and Service	10,000		20
Bed and Breakfast	1,200	6	1
Hotel	22,000	110	68
Office Park	60,000		242
Restaurant	10,000		74
Service Commercial	80,000		160
Shopping Center	60,000		190
Total	**243,200**	**116**	**755**

Figure 2. Proposed Residential Uses

	Units
Apartments	80
Town homes	180
Live/Work Units	44
Total	**304**

[2] The Merged Survey Database from 17 Colorado Communities as presented by RRC Associates, Boulder, CO, in Town of Snowmass Village 1999 Employer Survey presents statistically significant jobs/sq. ft. figures for several industrial categories (lodging, restaurants, retail, etc.).

Figure 3. New Population



Figures 3-6 demonstrate the factors of growth created by the new subdivision.

It is clear that the proposed development will be a significant addition to the existing Town. The increase in these fundamental units of growth form the mathematical base for the fiscal projections throughout the report.

Figure 4. New Housing Units

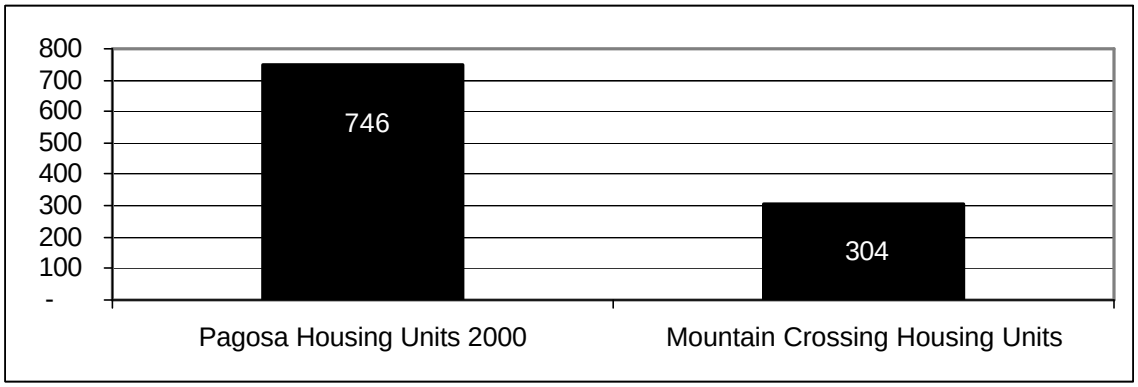


Figure 5. New Non-Residential Square Footage

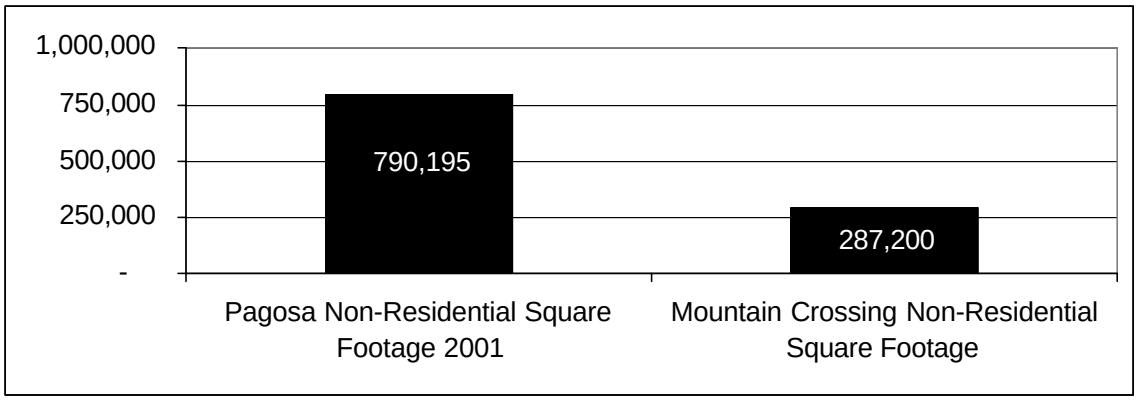


Figure 6. Percentage Increases

	Percent Increase Over Current Number
Housing Units	41%
Population	45%
Non-Residential Square Footage	36%

Depending on the nature of the Town department or special district, the increase growth units is assumed to be accompanied by an increase in demand for the services and facilities provided by the department or special district. That is why we refer to them as *demand units* throughout the report.

TOWN ADMINISTRATION

Introduction

Incremental growth has impacts on Town administration that are less obvious than those on other departments and districts, nonetheless impacts on administration are just as real and can affect the quality and efficiency of Town services in significant ways. Town administration is the headquarters for all Town operations, and drops in service levels from the headquarters will ultimately affect the entire Town. Undoubtedly more people and business activity create more demand for Town administrative services. This increased demand translates into more staff, facilities, and equipment. We know that larger Towns, such as Durango or Grand Junction, have larger administration staffs than smaller Towns (e.g. Cortez or Pagosa Springs). The key to maintaining a quality service level for administration is for the Town to increase administration resources in proportion to the growth in population and business activity. Failure to maintain this proportionate increase will degrade the service levels for the entire Town.

Methodology

The first step is to determine in what proportion the Town's administrative resources are expended on the residential and non-residential sectors respectively. Having determined the residential and non-residential sector demand units, residential population and non-residential square footage are divided into the existing operational expenditures and capital facilities values to obtain an existing Level of Service (LOS) per demand unit. Given the demand units projected to be generated by Mountain Crossing, a cost of maintaining the existing level of service given the additional development is generated.

Proportionate Share

According to Town Administration officials, administration resources are expended equally between the residential and non-residential sectors in the Town. Throughout this report, this breakdown between residential and non-residential demand is referred to as the *Proportionate Share*.

Figure 7. Administration Proportionate Share

Administration Proportionate Share	
Non-Residential Share of Demand	50%
Residential Share of Demand	50%

Projected Demand Units

At buildout, the proposed 304 residential units in Mountain Crossing will house a population equal to 45% of the 2000 population in Pagosa Springs (see **figure 7** above). The proposed non-residential square footage in mountain crossing totals at 287,200 sq. ft., an increase of 31% over the 2000 non-residential square footage currently in Pagosa Springs.

Figure 8. Administration Demand Units

Administration Demand Units	
2000 Population	1,591
2001 Non-Residential Sq. Ft.	790,195
Mountain Crossing Population	722
Mountain Crossing Non-Residential Sq. Ft.	287,200

Current Level of Service

Administration operations costs consist of the day-to-day tasks and materials needed to manage all of the Town's services and facilities. This level of service consists of the ratio of administration staff to demand units.

Figure 9. Administration Facilities LOS

Administration Operations Current LOS	
2000 Administration Operations Cost	$ 368,203
Cost per Administration Employee	$ 73,641
2000 Administration Employees/1000 Residents	1.6
2000 Administration Employees/100k sq. ft. of Non Residential Development	0.3

Given the 50/50 proportionate share between residential and non-residential demand for administration, the Town currently staffs .3 employees for each 100,000 sq. ft. of non-residential property in Town and 1.6 employees per 1000 full-time residents. The average annual cost of staffing one administration employee is $73,641, when all costs, including salary and benefits, supplies, and overhead is included.

Figure 10. Administration Operations LOS

Administration Capital Facilities LOS	
Administration Capital Facilities Value	$ 390,444
Capital Facility Cost per Capita	$ 123
Capital Facility Cost per Non-Residential Sq. Ft.	$ 0.25

Pagosa administration now occupies the newly constructed Town Hall and has purchased the furniture and equipment that, when added to the land, is valued at approximately $2.8 million. Town Hall was built to accommodate future capacity. Currently Town Hall has 14 office employees (not including law enforcement patrollers) and has the capacity for 40 office employees. Given existing employee capacity, the total value of the land, and the building/contents, the monetary level of service for space in Town Hall is $73,641 per employee.

Cost of Maintaining Current Administration LOS for Mountain Crossing

In order to maintain existing LOS with the addition of the projected resident population and non-residential square footage in Mountain Crossing, the Town will need to add two additional administration employees, at an annual, ongoing cost of over $150,000.

Figure 11. Administration Operation Costs of Mountain Crossing

Employees and Annual Cost to Maintain Current LOS for Administration Operations for Mountain Crossing		
	Administration Employees Needed	**Annual Cost of Staffing Additional Employees**
Mountain Crossing Population	1.1	$ 83,509
Mountain Crossing Non-Residential Sq. Ft.	0.9	$ 66,913
Total Development	2.0	$ 150,421

New employees will need office space, and while the existing Town Hall will certainly accommodate the additional employees, the cost of 'buying into" the existing facilities that the community is in the process of paying off is certainly part of the true cost of growth. As demonstrated above, it costs $73,641 per "slot" of office space in Town Hall. Given the additional employees needed to maintain the existing level of service, the total value of Town Hall space needed to accommodate new employees of nearly $160,000.

Figure 12. Administration Capital Costs for Mountain Crossing

Cost to Maintain Current LOS for Administration Capital Facilities for Mountain Crossing	
Administration Capital Facilities Cost to Serve Mountain Crossing Population	$ 88,553
Administration Capital Facility Costs to Serve Mountain Crossing Non-Residential Sq. Ft.	$ 70,954
Total Administration Capital Facility Costs to Serve Mountain Crossing	$ 159,507

Conclusions:

- Maintaining the current level of service for administration for the proposed Mountain Crossing at buildout will take two additional administration employees for an estimated cost of $150,000 per year.
- The 'buy-in' cost for Town Hall space for those employees is almost $160,000.
- Failure to increase administration resources as Mountain Crossing develops will result in a decline in the level of service for administration for the entire community.

STREETS

Introduction

Increased traffic is one of the most noticeable effects of growth, particularly considering Pagosa's small size and a location that geographically constrains the flow of traffic. New land uses nearly always cause new traffic. When someone builds a home on a vacant residential lot, additional traffic is generated by the residents in the house, whether they are full or part-time residents. If a Town does not have a grocery store, and one moves in, it will produce traffic where none existed before. The incremental increase in land uses in turn leads to an incremental increase in traffic.

Land uses require site-specific improvements to accommodate on-site traffic, however, they also contribute to impacts on the overall streets system by adding more to the total traffic in Town. This incremental addition of more traffic to a streets system will eventually lead to the need for streets capacity improvements at key intersections and streets throughout Town in addition to increasing the need for maintenance. The purpose of this section is to establish a level of service for streets and estimate how much it will cost to maintain this level of service for Mountain Crossing.

Methodology

Operations

The fundamental assumption behind the methodology for calculating the costs of streets day-to-day operations is that impacts on the streets system increase proportionately with traffic in the Town. The fundamental unit of measurement for traffic, used worldwide by traffic engineers and planners, is the *vehicle trip*, and in this case, the Average Daily Vehicle Trip[3] (ADT). The first step is to measure the existing trips generated by development in the Town currently. The estimate for traffic generated by non-residential development is obtained by applying the trip generation rates in the Institute of Transportation Engineers Trip Generation Manual (ITE) to the 'prime square footage' by assessment code provided by the Archuleta County Assessor's office. Assessment codes break down the structures in Town into relatively detailed land use categories (e.g. retail, lodging, offices, warehouses, government, etc.). Traffic generated by residential units in Town is obtained similarly by applying the trip generation rates from the ITE to the single-family residences and multi family residences in Town.

[3] An Average Daily Vehicle trip is the average number of times a car passes over a single line across a road in either direction in one day.

Average daily trips are then adjusted to avoid double counting trips. For example, a single family residence generates about 9.7 ADT and a grocery store generates about 111 ADT per 1000 sq. ft. This is the total driveway volume for both structures on a given weekday, so an outbound trip from the residence to the grocery store is counted both at the house and at the grocery store. The ITE has trip adjustment factors that eliminate the possibility of double counting. Furthermore, the ITE has calculated "pass-by trip" adjustments that adjust for the fact that a trip to a grocery store is often only a detour on the trip home. In short, the trip generation estimates are as accurate as possible short of the impossible task of hand counting every trip in Town.

The annual operations budget and the annual capital improvements expenditures are then divided by the number of base trips in Town to establish an annual operations and capital improvements cost per trip--referred to as the current LOS for trips. Trips generated by Mountain Crossing are calculated and adjusted using the same methodology described above. These trips, when multiplied by the current cost per trip for operations, yield the cost of maintaining the current LOS for Mountain Crossing.

Capital Facilities Improvements

Two main projects were identified by Town officials as directly linked to the development proposed in Mountain Crossing: improving Mill Creek Rd. and the Intersection of Mill Creek Rd. and SH 84. The costs of these projects were obtained from the 1997 Road Impacts Report created by Bechtolt Engineering and Four Corners Planning. The share of the cost to be carried by the Town was obtained from Town officials.

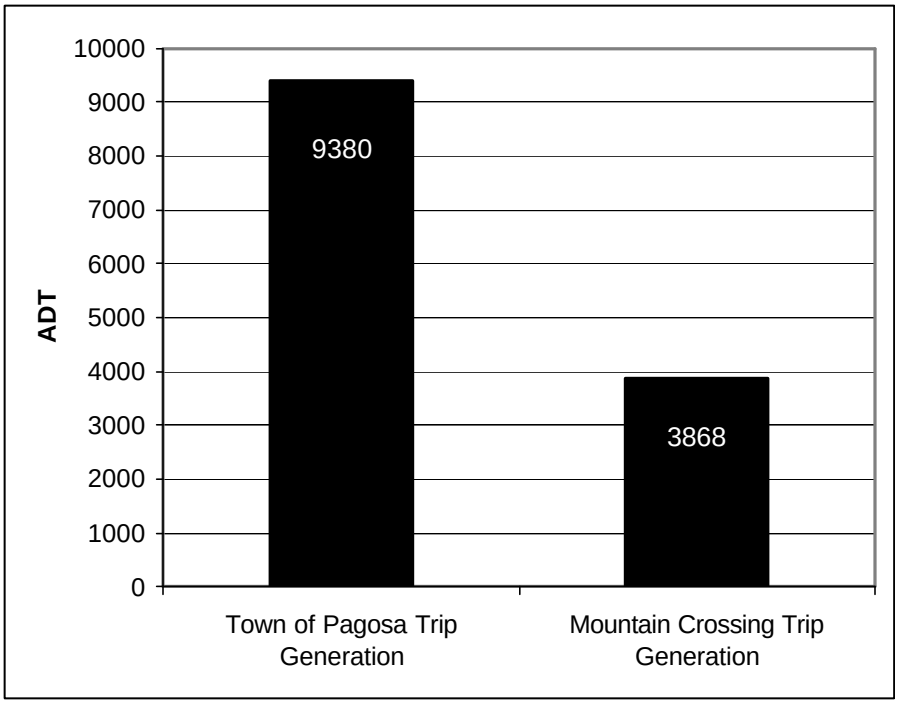
Proportionate Share

The proportionate share of the costs for maintaining the existing level of service for Streets is accounted for by the fact that each land use generates a certain number of trips, and those trips can be directly converted into costs.

Demand Units

The methodology described above yields an estimated 9,380 ADT trips generated by the residential and non-residential development currently in the Town of Pagosa Springs. The proposed commercial development in Mountain Crossing will generate an additional 2,928 ADT while the proposed residential component will produce an extra 940 ADT for a total of 3,868 ADT, or 41% of the trips currently generated by all of the development inside the Town limits.

Figure 13. Town and PUD Trip Generation



Current Level of Service

Operations

Given the number of trips generated by existing development, and the annual operations budget, the Town spends $29 annually per average daily vehicle trip.

Figure 14. Streets Operation LOS

2001 Streets Operations LOS		
Annual Operations Budget	$	270,612
Operations Cost per Average Daily Trip	$	29

Capital Facilities Improvements

Capital improvement costs to the Town directly related to Mountain Crossing Traffic are summarized in the **Figure 15**. The cost to the Town was estimated by taking the true cost estimated by the Bechtolt report referenced above and multiplying by 50%--the amount of the total cost estimated to be carried by the Town.

Figure 15. Streets Capital Improvements

Capacity Related Improvement Streets Projects Prompted by Mountain Crossing Traffic	
Project	*Cost to Town*
Mill Creek Road Improvements*	$ 199,677
Mill Creek and SH 84 Intersection Improvements*	$ 75,000
Total Capacity Related Improvements	$ 274,677

* Assumes Town Pays 50% of Total Project Cost

Cost of Maintaining Current LOS for Mountain Crossing

Given the number of trips projected for Mountain Crossing (about 3,868 ADT), the annual operations costs will need to increase proportionately to maintain the existing LOS. Improvements at Mountain Crossing are expected to cost the Town $274,677, that is, $71 per Average Daily Trip generated by Mountain Crossing at buildout.

Figure 16. Cost of Maintaining LOS for Mountain Crossing

Cost of Maintaining Current LOS for Mountain Crossing	
Annual Cost of Maintaining Current LOS for Streets Operations	$ 111,594

Cost of Mountain Crossing Prompted Streets Capital Improvements	
One-Time Cost of Maintaining Capital Improvements Level of Service for Mountain Crossing	$ 274,677
Capital Improvements Cost per Mountain Crossing --Average Daily Trip (ADT)	$ 71
Example Cost for One Town home	$ 340

Conclusions:

- Trips are the fundamental demand unit for measuring impacts on the streets system
- To maintain the current LOS each additional daily trip generated by development in Town costs $29 dollars/year for streets operations.

Mountain Crossing is expected to increase traffic in Town by 41% over its current level.

- Maintaining the current level of service for the additional traffic generated by Mountain Crossing for streets operations will total $111,500/year.
- Mountain Crossing prompted street improvements will call for a one-time expenditure of about $275,000.

LAW ENFORCEMENT

Introduction

The Pagosa Springs police department, like other Town services, must increase its resources as the Town grows. Between 1989 and 2000, the number of police responses increased from 7,162 to 14,982--demand for law enforcement has more than doubled. This increase in demand for law enforcement is driven by 3 trends: 1) growth in resident population, 2) growth in commercial activity, and 3) growth in highway traffic passing through Town. To fully anticipate increased demand for law enforcement services, the Town must track changes in these trends.

The purpose of this analysis is twofold. First is to determine the share of demand on the police department that is related to residential and non-residential land uses. Second is to project the increased demand on the department based on proposed quantities of residential and non-residential land uses at Mountain Crossing.

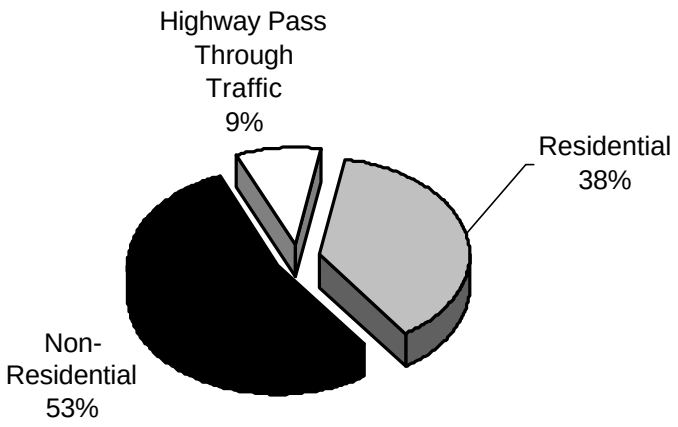
Methodology

The first step is to determine in what proportion the Police Department's resources are allocated on the three demand generators; residential population, commercial activity, and highway pass-through trips. Then, the level of service for operations, in terms of officers per capita and per non-residential sq. ft., can be applied to the projected population and non-residential sq. ft. at Mountain Crossing to determine the cost of maintaining that level of service. Capital facilities can be broken down the same way and converted into a level of service that is easily multiplied by the demand units proposed in Mountain Crossing.

Proportionate Share

The proportionate share was determined using 1999 and 2000 calls and response data compiled and categorized by the police department. The categories in which the responses were broken down allowed for a straightforward re-categorization of the calls into residential, non-residential, and highway pass-through responses. For instance, house checks and "dog catcher" calls are assigned 100% to the residential sector while business checks and parking tickets were assigned to the non-residential sector. **Figure 17** demonstrates the results.

Figure 17. Police Proportionate Share



To some extent, law enforcement demand generated by tourists explains the higher proportion of non-residential calls. According to an analysis of lodging units compiled by the Pagosa Area Chamber of Commerce, there are enough units in Town boundaries to accommodate an additional 900 people. Because tourists are generally located in the non-residential portion of the Town (motels, restaurants, bars, recreation establishments) the increased demand for law enforcement generated by tourists is linked to the non-residential sector.

Demand Units

More people means more demand for law enforcement. This is easily reflected by the fact that larger Towns have larger police forces. Ridgway with a population of 713 has three officers while Pagosa, with 1591 people, has seven full-time and two part-time officers. Similarly, Durango with 14,000 people has 50 officers. In terms of land use, the population of a Town is directly connected to the amount of housing or residential land use in the community. Non-residential land uses create demand for law enforcement as well. Hotels and motels house additional people in Town, stores need protection from shoplifting, bars generate late night calls, public schools are often the scene of juvenile offenses, and so on.

Police officials agree that the amount of law enforcement required by a non-residential development is related to the amount of activity that accompanies it. The best measure of non-residential activity is the amount of traffic generated, or the average daily vehicle trips (often referred to as 'trips'-- See the previous section on Streets for a full methodological description of calculating vehicle trips).

While the highway serves as the main transportation corridor connecting the Town's businesses, housing, and institutions, it is also a major avenue on which thousands of cars per day simply pass through Town without stopping. These cars are just as prone to speeding and wrecking as are the cars used to go about the day to day business in Town and so they too create demand for law enforcement (measured in trips).

Figure 18. Law Enforcement Demand Units

Law Enforcement Demand Units	
Pagosa Population 2000	1,591
Non-Residential Average Daily Vehicle Trips	5,957
Highway Pass Through Trips	5,077
Mountain Crossing Population	722
Mountain Crossing Non-Residential Average Daily Vehicle Trips	2,928

Population and non-residential vehicle trips are the only demand units projected in Mountain Crossing because the development is not likely to contribute to the traffic driving all the way through Town from one end to the other.

Current Level of Service

In order to accurately assess the additional demand Mountain Crossing will have on the police department, the operations and capital facilities level of service must be calculated for all three demand generators (i.e. residential, non-residential, and highway pass through trips).

There are 7 full-time and 2 part-time officers, or 8 full time equivalent (FTE) officers. Given the operations budget, it costs an average of $45,404 to staff a single police officer. This figure does not include vehicle purchases or equipment, which are considered separately in the capital facilities LOS calculations. Residential population generates 38% of the demand for law enforcement and there are currently 1.9 officers per 1000 people living in Town; which yields a LOS close to the national standard of two officers per 1000 people. Given the non-residential share of the demand, each 1000 average daily non-residential vehicle trips in Pagosa receives .7 of a FTE police officer's time. Each highway pass through average daily trip gets .14 of an FTE's time.

Figure 19. Police Operations LOS

Law Enforcement Operations LOS	
	Number of Officers
Total Full-Time Equivalent Officers 2000	8
Annual Operations Cost/Officer	$ 45,404
Officers/1,000 Population	1.9
Officers/1,000 Non-Residential Average Daily Vehicle Trips	0.7
Officers/1000 Highway Pass Through Trips	0.14

The capital facilities for the police department consist of their vehicles, their equipment, and their share of Town Hall. The total value of just under $475,000 can then be applied to the proportionate share and the demand units to obtain the capital facilities level of service for police per demand unit summarized in **figure 20**.

Figure 20. Police Capital Facilities

Law Enforcement Capital Facilities	
Vehicles	$ 170,000
Officer Equipment	$ 20,000
Town Hall	$ 284,625
Total	$ 474,625

Figure 21. Police Capital Facilities LOS

Law Enforcement Capital Facilities LOS	
Capital Facilities Cost per Capita	$ 112
Capital Facilities Cost per Non-Residential Average Daily Trip	$ 42
Capital Facilities Cost per SH 160 Average Daily Pass Through Trip	$ 9

To put this in perspective, a residence with the average occupancy of 2.5 people costs the police department $280 in capital facilities (one time) and about $215 ongoing annually for operations.

Cost of Maintaining Current LOS for Mountain Crossing

Given the projected 722 people in Mountain Crossing at buildout, it will take an additional 1.4 police officers at an annual cost of $61,962 to maintain the current level of service for law enforcement for the resident population. Given the projected average daily trip generation for Mountain Crossing (see Streets section), it will take an additional 2+ FTE officers to provide police protection for the commercial activity occurring in the proposed 287,000 sq. ft. of commercial space. The additional cost of almost $95,000 per year for the commercial development combined with that cost of maintaining the current LOS for the residents combines for a total annual cost of about $157,000/year to staff 3.5 FTE officers.

Figure 22. Police LOS Costs Associated with Mountain Crossing

Cost of Maintaining Law Enforcement Operations LOS for Mountain Crossing		
	Officers Needed	Annual Cost of Staffing Officers
Mountain Crossing Population	1.4	$ 61,962
Mountain Crossing Non-Residential Average Daily Vehicle Trips	2.1	$ 94,987
Total Annual Operations	3.5	$ 156,949

Each police officer needs a vehicle, equipment, and some place to sit in Town Hall, although this analysis takes into account that a patroller needs less space than other Town Hall employees do. The increased need for capital facilities to maintain the current Level of Service will cost just over $200,000.

Figure 23. Police Capital Facilities Cost Associated with Mountain Crossing

Cost of Maintaining Law Enforcement Capital Facilities LOS for Mountain Crossing	
Mountain Crossing Population	$ 80,964
Mountain Crossing Non-Residential Average Daily Vehicle Trips	$ 124,118
Total Capital Facilities	$ 205,082

Conclusions:

- The current level of service for Police officers per capita meets national standards.
- Both the residential and commercial components of Mountain Crossing will generate additional demand for law enforcement
- Maintaining the level of service given the projected population of the proposed Mountain Crossing will require an additional 3-4 police officers for a total cost of over $150,000 annually.
- The one-time cost of outfitting these officers with vehicles, equipment, and Town Hall space should cost just over $200,000.
- Failure to increase expenditures in proportion to the amount of growth expected at Mountain Crossing will result in a decline in the level of service well below national standards.

PAGOSA SPRINGS MUNICIPAL COURT

Introduction

Growth affects the Municipal Court in much the same way that it affects the police department. More people and activity result in more court cases, most of which are a direct result of increased law enforcement responses[4]. The court is the smallest Town department, but, considering its role in finalizing law enforcement, it deserves no less attention than the other Town Departments.

Methodology

Since the Court primarily deals with law enforcement cases coming out of the Police Department, the police proportionate share ratios for residential, non-residential, and highway pass-through traffic will be used for the Court as well. Similarly these proportions will be used for assigning the proper demand units. Thus, the methodology for Courts is essentially identical to that of the Police Department. One main difference is that, since much of the Court's operation expenses are related to contracting with the District Attorney and Judge, the level of service is stated purely in dollar amounts. This will avoid overstating the cost per employee and inflating the results.

[4] The Court also plays the central role in juvenile services in the community.

Proportionate Share

The proportionate share is identical to the Police Department's. See previous section on Law Enforcement for a methodological disclosure.

Figure 24. Municipal Court Proportionate Share

Court Proportionate Share	
	% of Total
Residential	38%
Non Residential	53%
Highway Pass Through Traffic	9%

Demand Units

Again, the demand units are the same for the Court as they are for Law Enforcement. Highway pass through trips primarily account for traffic and other offenses committed by passerby's on the highway. Since Mountain Crossing is not likely to contribute to pass through traffic, the pass through portion of the overall Court expenditures are subtracted from the equation for calculating the costs of maintaining the existing level of service.

Figure 25. Municipal Court Demand Units

Court Demand Units	
Pagosa Population 2000	1,591
Non-Residential Average Daily Vehicle Trips	5,957
Highway Pass Through Trips	5,077
Mountain Crossing Population	722
Mountain Crossing Non-Residential Average Daily Vehicle Trips	2,928

Level of Service

Given the annual operations cost of over $100,000, the Court currently expends $24 per person per year in Town ($73 for a typical residence/yr) and $9 per non-residential trip per year (that's about $810/year for a 1000 sq. ft. restaurant).

Figure 26. Municipal Court Operations LOS

Court Operations LOS		
Annual Cost Per Capita	$	24
Annual Cost Per Non-Residential Average Daily Trip	$	9

The only capital facilities held by the Municipal Court is its share of Town Hall, which amounts to a total value of just over $126,000. When divided by the existing demand units for residents and commercial activity this means that each new resident costs about $30 and each non-residential trip costs about $11 (one time cost) for Town Hall space.

Figure 27. Municipal Court Capital Facilities LOS

Court Capital Facilities LOS		
Per Capita	$	30
Per Non-Residential Average Daily Trip	$	11

Cost of Maintaining Current LOS for Mountain Crossing

Given the cost of maintaining the current level of service and the projected demand units for Mountain Crossing, it will cost approximately $44,000 per year for court services and $54,660 for Town Hall space.

Figure 28. Municipal Court Costs Associated with Mountain Crossing

Cost to Maintain Current LOS for Mountain Crossing	
Annual Operations	44,056
Capital Facilities	54,660

Conclusions:

- Maintaining the existing LOS cost the court $24/yr for each new resident in Pagosa Springs, while each increment of non-residential activity (non-residential trips) costs $9.
- Additional court cases coming out of the Mountain Crossing development are expected to cost about $44,000 annually, and $54-55,000 to buy-in to the existing capacity at Town Hall.

PARKS, OPEN SPACE, AND TRAILS

Introduction

Parks, open space, and trails contribute greatly to the quality of life in small Towns and big cities alike. Furthermore, they make a significant contribution to the package of amenities that make places attractive destinations to tourists. Land prices make parks and open space development quite challenging in the Rockies; in addition to land cost, development costs may be as high as $150,000/mile for bike paths, $100,000+ for a softball field, etc.. For this reason, it is very important to monitor how development affects the existing park/open space system and establish mechanisms for funding additional acquisitions and development.

Pagosa currently has a relatively high level of service for parks and open space. This analysis will give decision makers a set of tools by which to evaluate the Town's level of service for parks/open space and assess the impact of the Mountain Crossing development proposal might have on this LOS.

Methodology

This section of the report provides a comprehensive look at the Town's current level of service (LOS) both in terms of the peak and permanent population, depending on the type of park facility. A comparison to national standards for parks, trails, and open space LOS is also included in this portion of the analysis. The next step is to look at the quantity parks, open space, and trails it would take to maintain the current LOS given the additional full-time and peak population of the Mountain Crossing development. This additional demand to meet the current LOS is then compared to the conceptual parks and open space dedication proposed in the Mountain Crossing master plan.

Analysis ends with the ultimate cost of achieving the current level of service given the conceptual parks dedications in Mountain Crossing, the current land acquisition costs and facility development costs, and the additional demand units projected to be generated by the development.

Demand Units

Both permanent and peak population demand units are used to calculate the level of service and project the impacts of the proposed development. Peak population includes both full-time residents and tourists occupying lodging

units. Since tourists and locals alike use the parks, open space, and trails, calculations on these park types are based on peak population. However, tourists rarely use the athletic fields, so athletic field calculations are based only on permanent population. Note that the current land use proposal for Mountain Crossing includes 116 lodging units, which means that the peak population is projected to be 255 more than the permanent population.

Figure 29. Pagosa Populations

Pagosa Peak Population	2,475
Mountain Crossing Peak Population	977
Pagosa Year Round Population	1,591
Mountain Crossing Year Round Population	722

Current Level of Service

Overall, the current level of service for community parks, open space, and trails is above national service standards for many categories. Pagosa Springs park acreage and open space acreages per capita far exceed the national and regional standards compiled by RPI. The level of service for athletic fields falls short of national standards, and these fields are not owned by the Town, they are owned by the school district.

Pagosa's trails are above national standards and plans are in the works to develop another mile of trail in the 23-acre conservation easement along the San Juan river. The high level of service per capita for community parks and open space represents the efforts of Pagosa, a small Town, to develop a

Figure 30. Parks & Open Space LOS

Pagosa Springs Parks, Trails, and Open Space LOS					
	# of Units in Pagosa	**Units**	**Pagosa LOS**	**Units**	**National/Regional Standards LOS**
Community Parks	17	Acres	6.8	Acres/1000 of Peak Population	2.5 acres per 1000
Natural Areas/Open Space	206	Acres	129.5	Acres/1000 of Peak Population	1 acre per 1000
Tennis Courts	0	Number	0.0	Number/1000 of Full-Time Population	.5 per 1000
Outdoor Basketball Court	1	Number	0.6	Number/1000 of Full-Time Population	.5 per 1000
Softball/Baseball Fields	3	Number	1.9	Number/1000 of Full-Time Population	.25 per 1000
Soccer Fields	3	Number	1.9	Number/1000 of Full-Time Population	.25 per 1000
Trails	6	Linear Miles	2.4	Linear Miles/1000 of Peak Population	1.6 miles per 1000
Biking Trails/ 8' concrete	2	Linear Miles	0.8	Linear Miles/1000 of Peak Population	1.4 miles per 1000

complete parks and open space system. Furthermore, in addition to attracting a significant number of tourists, skiers, and hunters, Pagosa Springs is the only municipality in Archuleta County and therefore is the only provider of municipal recreational facilities in the area, and so the Town has been realistic in designing a parks and open space system capable of handling a demand exceeding its own population. **NOTE:** Pagosa was deeded the 160 acre Reservoir Hill open space property decades ago, before the Town was actively undertaking open space development. For this reason, in the following sections, this 160 acres will be excluded from the LOS in estimating costs of maintaining the current LOS.

Cost of Maintaining Current Parks & Open Space LOS for Mountain Crossing

As summarized in **figure 29**, Mountain Crossing will contribute significantly to the permanent and peak population in Pagosa Springs. The second column of **figure 31** is simply a product of the current level of service per capita and the peak population of the proposed development (except for athletic fields, which are multiplied by the permanent population). At buildout of the currently proposed housing and lodging units in Mountain Crossing, the Town will need to acquire and develop nearly 7 acres of community parks and nearly 21 acres of open space in order to maintain the current LOS.

The conceptual 13 acre parks/open space component of the Mountain Crossing master plan, while it certainly meets the 5% land for public purposes requirement of the Pagosa Springs Subdivision Regulations, does not achieve the current level of service. This means that if the dedications are not adjusted to equal the amount listed along the second column of **figure 31**, the Town will experience a decline in the level of service. Pagosa may decide that the parks and open space system has additional capacity and therefore a decline in the level of service will simply contribute to filling out the existing capacity (as may be likely with open space, since the Town currently has over 200 acres). As stated above, the 160-acre Reservoir Hill open space property is not included in the LOS calculations in **figure 31**. Consequently, the acreage needed to maintain the current LOS is significantly reduced

However, certain parks facility types, such as athletic fields and trails are already at a lower level of service than regional and national standards. Lack of specific dedications by the Mountain Crossing as it builds out will result in further decline. The far right column of **figure 31** contains the shortfall of parks, open space, and trails needed to achieve the current LOS given the contemplated dedications by the applicant.

Figure 31. Parks, Open Space, & Mountain Crossing

Units Needed to Maintain Current Parks, Open Space, and Trails LOS for Mountain Crossing Compared to Conceptual Parks/Open Space Dedications				
	Units Needed to Maintain Existing LOS for Mountain Crossing	**Units**	**Conceptual Open Space and Parks Component in Mountain Crossing**	**Unit Shortfall Needed to Meet Current LOS**
Community Parks	6.7	Acres	3.3	3.4
Natural Areas/Open Space	93.4	Acres	10.0	83.5
Tennis Courts	0.4	Number	0.0	0.4
Outdoor Basketball Court	0.5	Number	0.0	0.5
Softball/Baseball Fields	1.4	Number	0.0	1.4
Soccer Fields	1.4	Number	0.0	1.4
Trails	2.4	Linear Miles	0.0	2.4
Biking Trails/ 8' concrete	0.8	Linear Miles	0.0	0.8

Pagosa Springs has several tools at hand for acquiring land for parks, open space, and trails including: outright purchase, required dedications, donations, conservations easements, trail easements, and other lesser known methods.

However, the purpose of this study is to estimate the true cost of maintaining public services given a significant increment of growth. In the context of parks and open space, this means that the cost of land acquisition is estimated in terms of the real cost, or the cost of purchasing the land outright. Land acquisition costs were obtained by interviewing local realtors and real estate appraisers while the development costs were obtained from a parks and recreation development cost database recently compiled by the Division of Local Government. Because the master plan for Mountain Crossing specifies about 13 acres of park and open space dedication, the price of acquiring this land is excluded from the total cost figures. The 83.5 additional acres needed to maintain the existing level of service makes up the lion's share of the total cost at about $7.3 million.

Figure 32. Parks & Open Space Costs

	Unit Shortfall Needed to Meet Current LOS	Units	Acquisition Costs per Unit	Development Cost per Unit	Full Cost of Acquiring and Developing the Mountain Crossing Shortfall
Community Parks	3.4	Acres	$ 76,795	$ 22,000	$ 331,776
Natural Areas/Open Space	83.5	Acres	$ 87,401	$ -	$ 7,293,813
Tennis Courts	0.0	Number		$ 27,000	$ -
Outdoor Basketball Court	0.5	Number		$ 18,000	$ 8,165
Softball/Baseball Fields	1.4	Number		$ 108,000	$ 146,967
Soccer Fields	1.4	Number		$ 35,000	$ 47,628
Trails	2.4	Linear Miles	$ 63,565	$ 3	$ 150,516
Biking Trails/ 8' concrete	0.8	Linear Miles	$ 127,129	$ 147,840	$ 217,025
				TOTAL	**$ 8,195,890**

Again, this is based on the assumption that the Town would have to acquire high quality open space at full market prices. Without the open space acquisition costs the total cost would be just over $900,000. Experience shows that there are other, less expensive means for securing and/or acquiring open space. Athletic fields are assumed to be contained within the community parks, so only their development costs are contemplated here.

Once new parks, open space, and trails are developed, they must be maintained. Maintenance costs summarized in **figure 33** below are based on analyzing the Pagosa Springs Parks dept. budget in light of insights provided by department officials.

Figure 33. Parks & Open Space Maintenance Costs

	Maintenance Costs/Unit	Units	# of Units Needed to Maintain LOS	Total Annual Maintenance Costs
Community Parks	$ 6,855	Acres	6.7	$ 45,849
Natural Areas/Open Space	$ -	Acres	93.4	$ -
Tennis Courts	$ -	Number	0.0	$ -
Outdoor Basketball Court	$ 1,962	Number	0.5	$ 890
Softball/Baseball Fields	$ 3,924	Number	1.4	$ 5,339
Soccer Fields	$ 3,924	Number	1.4	$ 5,339
Trails	$ 167	Linear Miles	2.4	$ 395
Biking Trails/ 8' concrete	$ 1,500	Linear Miles	0.8	$ 1,184
			TOTAL	**$ 58,996**

Maintenance costs estimations are based on the cost for maintaining all of the facilities needed to preserve the LOS given Mountain Crossing's permanent and peak population, not just the shortfall after the proposed dedications.

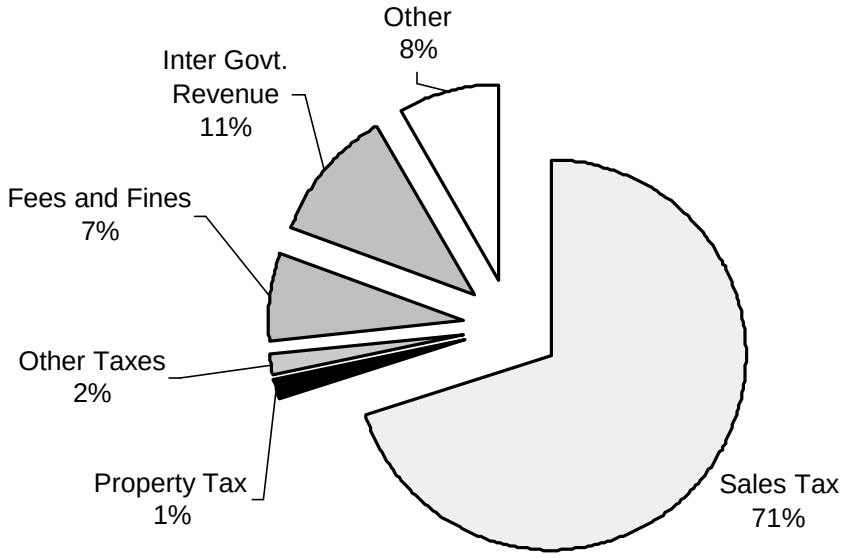
Conclusions:

- For community parks and open space, Pagosa exceeds local and regional standards, but for athletic fields, Pagosa falls short. Plans are currently underway to develop and athletic complex to meet this shortfall.
- The conceptual 13 acres set aside for parks and open space for Mountain Crossing certainly meet the 5% lands for public purposes standard in the subdivision regulations, but falls short of maintaining the current LOS.
- At full market prices, the ultimate cost of maintaining the current LOS is high at ($7.2 million) although this number is skewed by high open space LOS.
- While this analysis calculates the true market cost of acquiring parks, trails, and open space, this process, perhaps more than any other type of infrastructure building, allows a whole range of flexible tools that can bring the costs down significantly. One of these tools is to require actual 'in fee' land dedications by subdividers to the Town, or cash in lieu specifically for parks, open space, and trails.

MOUNTAIN CROSSING GENERAL FUND REVENUE PROJECTIONS

Before projecting the revenues generated by the proposed Mountain Crossing, it is useful to look at the breakdown in revenue sources for the Town.

Figure 34. 2000 Town Revenue Percentage by Source



An obvious conclusion to make here is that sales tax is the dominant revenue source. Another is that property tax contributes minutely to the overall budget. This reflects the remarkably low property tax rate for the Town, 1.68 mills, which is less than 1/10th the mill levy for Archuleta County.

It is also worth noting that the intergovernmental revenue makes up a significant portion of the total budget for 2000, and this is typical of most years. Intergovernmental revenues are often conferred to the Town in the form of grant money for specific projects, such as streets and sidewalks improvements or open space acquisitions.

Mountain Crossing will generate revenues for the Town. Revenue expected from Mountain Crossing breaks down into six categories (sales tax, property tax, other tax, highway users tax, fines and fees, and other). The purpose of

this section is to systematically project the revenues for Mountain Crossing by type so that the ensuing fiscal summary can determine whether Mountain Crossing revenues will cover the cost of maintaining the current level of service for Town Departments.

Sales Tax

Mountain Crossing, as currently proposed, will contribute to the Town's sales tax base in two ways: 1) the retail component will generate sales tax 2) the residents in the proposed housing units will spend money throughout Town, generating sales tax.

Looking back to 1994, there has been a solid linear relationship between jobs and sales tax revenue collected through the 4% joint Town/County sales tax. With a standard deviation of only $28, the average sales tax collection per job in taxable sectors is $1,286 per year (after all years are adjusted for inflation). The process of determining the number of jobs in taxable sectors (like retail and lodging) was a matter of sorting out the retail oriented 2-digit SIC code sectors from the non-sales tax producing sector jobs (like legal services and government).

Given this natural relationship between sales tax revenue and jobs in taxable sectors, the most logical way to project sales tax revenues for Mountain Crossing based is to project the jobs in the retail and lodging portions of the development and multiply the projected jobs by the sales tax per job. A recent 17 Colorado community survey conducted by survey experts[5] summarizes the jobs/sq. ft. ratios for several different business types as part of several affordable housing studies. Applying the jobs/sq. ft. to the proposed sales tax producing land uses in Mountain Crossing revealed a total of 353 jobs, broken down as follows. **Note:** this table is somewhat different than **figure1** because service jobs and other non-taxable sectors are eliminated.

[5] Merged Survey Database from 17 Colorado Communities as presented by RRC Associates, Boulder, CO, in Town of Snowmass Village 1999 Employer Survey

Figure 35. Mountain Crossing Job Generation

	Sq. Ft. or Units	Units (if applicable)	Jobs
Auto Sales and Service	10,000		20
Bed and Breakfast	1,200	6	1
Hotel	22,000	110	68
Restaurant	10,000		74
Shopping Center	60,000		190
Total	**103,200**		**353**

Pagosa Springs receives 2% of the 4% countywide sales tax. As stated above, the County's 4% sales tax generates an average of $1,286 per job per year, which means the Town gets $643 per employee per year. This ratio, multiplied by the projected 353 jobs in taxable sectors in Mountain Crossing, yields a total annual sales tax revenue projection of $226,748 coming from the retail and lodging component of Mountain Crossing (see **figure 36**).

The resident generated sales tax revenue projections also involve several steps. The Demography section's most recent estimate for personal income per capita in Archuleta County is $17,548 annually. According to analysis of the 1998 Consumer Expenditure Survey conducted by the Bureau of Census, citizens in this region spend about 38% of their income on retail goods. Assuming that the majority of these goods are taxable, this means that potentially $6,651 of the average personal income gets spent on taxable goods. However, for Mountain Crossing residents a good portion of this might be spent in the retail component of the development, which would result in a double counting problem. To avoid this we first assume that the consumers will not favor Mountain Crossing over other retailers in the area. An adjustment factor can then be applied that consists of the ratio of existing jobs in Archuleta County to the total jobs in Mountain Crossing plus the existing jobs in Archuleta County (85%). Essentially, applying this ratio 'zeros out' the consumer spending of Mountain Crossing residents in the Mountain Crossing retail component, and thus eliminates the double counting problem. Having adjusted the retail spending per resident, calculating the sales tax revenue generated by resident spending is simple arithmetic.

Figure 36. Sales Tax Revenues Generated by Mountain Crossing

Adjusted Retail Spending per Capita	$	5,634
Mountain Crossing Population		722
Mountain Crossing Resident Spending	$	4,065,695
2% Sales Tax Revenue	$	81,314

The total sales tax revenue is summarized in **figure 37**.

Figure 37. Total Sales Tax Revenues Generated by Mountain Crossing

Pagosa Springs Sales Tax Revenue/Job (in year 2000 dollars)	$ 643
Mountain Crossing Jobs in Taxable Sectors	353
Mountain Crossing Commercial Sales Tax Revenue (in year 2000 dollars)	$ 226,748
Mountain Crossing Sales Tax Revenue Generated by Resident Spending	$ 81,314
Pagosa Springs General Fund 1% Sales Tax Revenue From Mountain Crossing	$ 154,031
Pagosa Springs Capital Facility 1% Sales Tax Revenue From Mountain Crossing	$ 154,031

One important characteristic of the Pagosa sales tax is that half of it (1%) is earmarked for capital improvements. Consequently, the general fund and capital improvements fund should get just over $154,000 apiece.

Property Tax

Property tax is collected at 1.68 mills on the assessed valuation of property. Therefore, the only step, other than multiplying the mill levy by the assessed valuation, is to project the assessed valuation of Mountain Crossing. Projecting the assessed valuation of the residential portion of Mountain Crossing involves three steps:

1. Find the existing average assessed valuation of each unit type using assessor data for the Town of Pagosa
2. Multiply the number of proposed units by this amount
3. Adjust the total upwards for a 'newness' factor (20%)

Figure 38. Assessed Valuation of Mountain Crossing

	Units	Assessed Value/Unit	Adjusted Assessed Value
Apartments	80	$ 6,094	$ 585,019
Town homes	180	$ 9,274	$ 2,003,229
Live/Work Units	44	$ 9,274	$ 489,678
Total	**304**		**$ 3,077,927**

This process yielded a projected assessed valuation of $3,077,927 for Mountain Crossing under the existing residential assessment rate (9.74%). Projecting the assessed valuation of the Mountain Crossing non-residential property also involves multiple steps:

1. Find the average assessed valuation per square foot for different types of commercial land uses using assessor data for the Town of Pagosa
2. Multiply the proposed commercial square footage in Mountain Crossing average assessed valuation per square foot (adjusted upwards 33% for newness factor) according the most fitting land use categories.

This process yielded a projected assessed valuation of just under $5.8 million for Mountain Crossing commercial development under the existing non-residential assessment rate (29%).

Figure 39. Assessed Valuation of Mountain Crossing Non-Residential Property

	Assessed Value / Sq. Ft.	Mountain Crossing Sq. Ft.	Assessed Valuation
Auto Sales and Service	27	10,000	$ 268,612
Bed and Breakfast	27	1,200	$ 32,233
Hotel	27	22,000	$ 590,946
Office Park	26	60,000	$ 1,578,864
Restaurant	22	10,000	$ 221,153
Service Commercial	23	80,000	$ 1,841,046
Shopping Center	22	60,000	$ 1,326,917
Total	**174**	**243,200**	**$ 5,859,771**

The total assessed valuation (just over $8.9 million) can then be multiplied by the current mill levy rate of .00168% to obtain the projected property annual tax revenues. As expected, the annual property tax revenues will pale in comparison to the sales tax revenues projected in **figure 39**.

Figure 40. Projected Property Tax Revenues from Mountain Crossing

	Assessed Valuation	Revenue
Residential	$ 3,077,927	$ 5,171
Commercial	$ 5,859,771	$ 9,844
Total	**$ 8,937,698**	**$ 15,015**

Other Revenues

There are a number of other revenue sources such as highway users tax, specific ownership tax, court fees, fines, service fees, user fees, application fees, etc. that make significant contributions to the budget. These revenues are projected using a straight averaging costing methodology. Each revenue line item is divided by the appropriate revenue generation units to obtain a revenue per unit ratio, which is then multiplied by the projected units for Mountain Crossing.

For example, specific ownership tax is a tax on vehicle registrations and therefore increases with the number of registered vehicles. Several studies by the ITE suggest that the number of vehicles increases proportionately to the number of housing units. Thus, for specific ownership tax, the revenue generation units are housing units. Housing units in Pagosa Springs are divided by the housing units in Town to obtain the current specific ownership tax per household, which is then multiplied by the proposed number of housing units in Mountain Crossing to obtain the projected specific ownership tax revenue for Pagosa Springs. **Figure 41** summarizes the total projected annual revenue (in 2000 dollars) generated by Mountain Crossing at buildout.

Figure 41. Total Projected Revenues Generated by Mountain Crossing

Mountain Crossing Annual Revenue Projection (in Constant 2000 dollars)		
General Fund 1% Sales Tax	$	154,031
Capital Improvements 1% Sales Tax	$	154,031
Property Tax	$	15,015
Fees and Fines	$	54,225
Hwy Users Tax	$	28,410
Other Taxes	$	20,933
Other Revenue	$	15,206
Total	$	441,851

MOUNTAIN CROSSING FISCAL SUMMARY: THE BOTTOM LINE

This final step in the Development Impact Analysis of Mountain Crossing compares the cost of maintaining the existing level of service to projected revenues. Just as in the rest of the analysis, annual operations fiscal summary is separated from the capital improvements fiscal summary. **Figure 42** summarizes the costs of maintaining the current level of service for all general fund departments broken down into annual operations costs and one-time capital improvements costs.

Figure 42. Total Operations & Capital Costs of Mountain Crossing

Department	Annual Operations Cost of Maintaining Current LOS for Mountain Crossing	One-Time Capital Improvements Cost of Maintaining Current LOS for Mountain Crossing
Administration	$ 150,677	$ 159,507
Streets	$ 111,594	$ 274,677
Police	$ 156,949	$ 205,082
Court	$ 44,056	$ 54,660
Parks	$ 58,996	$ 1,852,626
Total	**$ 522,272**	**$ 2,546,552**

It is important to remember that the local government provides an enormous amount of infrastructure and support for development in the Town. The estimated $53 million dollar value of Mountain Crossing itself is just one piece of a larger picture of what it takes to support a development that size. It would not be possible to develop Mountain Crossing as it is proposed without existing and future streets, administration, police, and other infrastructure. The project most likely would not be feasible if Pagosa Springs did not already possess parks, open space, and trails making the Town a desirable district in which to develop.

Clearly, previous expenditures and thousands of decisions have gone into making the public infrastructure of Pagosa what it is today. Buildout costs simply reflect what it will take to maintain current LOS should the proposed project be built out and increase the Town population by 45%.

Annual general fund operations revenue from Mountain Crossing falls short by about $234,000 annually if the current LOS is to be maintained for general fund departments. If tax rates remain the same, and no additional revenue

mechanisms are applied, the community will experience a decline in the level of service as Mountain Crossing builds out.

Figure 43. Mountain Crossing General Fund Operations Summary

Mountain Crossing Annual General Fund Operations Fiscal Summary		
Annual Operations Costs to Maintain Current LOS	$	522,272
Annual General Fund Operations Revenue	$	287,820
Annual Shortfall to Maintaining Current LOS	**$**	**234,452**

The capital improvements fiscal summary requires a slightly different approach because, while the costs theoretically accrue one time during buildout, the 1% sales tax earmarked for capital improvements accrues annually. While there are probably several ways to look at it, perhaps the best is to calculate annual revenues and see how many years it might take to pay for the capital improvements necessary to maintain the current level of service. **See figure 44.**

Figure 44. Mountain Crossing Capital Improvements Summary

Mountain Crossing Capital Improvements Fiscal Summary	
Annual Capital Improvements Sales Tax Revenue	$ 154,031
Total Capital Improvements Cost of Maintaining Current LOS for Mountain Crossing	$ 2,546,552
Number of Years of 1% Sales Tax Necessary to Pay for Capital Improvements	17

Assuming that the entire project is built out as proposed, it would take 17 years to pay for capital improvements needed to maintain the current LOS. While this is certainly within the economic lifespan of a development, it exceeds the timeframe in which capital facilities planning usually occurs.

Conclusion

The 1% sales tax should reasonably cover the cost of funding the capital improvements within 17 years after the project builds out (assuming general inflation keeps up with construction inflation). This timeframe may be too long to reasonably plan for capital facilities, but nonetheless, given the full buildout of the project as it is now proposed, it should eventually cover the costs. However, there is still an annual shortfall of operating expenditures that, if not remedied, could cause a decline in the level of service for Town operations and maintenance.

Recommendations and Considerations

Because Mountain Crossing possesses a balanced development we would expect it to be a fiscally sound. Unfortunately, the existing tax structure will cause Mountain Crossing to degrade public service and facility levels of service. Even if the residential portion of the project is eliminated, leaving only commercial development, the project will still generate a $150,000 shortfall of current operations LOS. Consequently, the problem must lie in the tax structure---taxes are simply not high enough to maintain the current level of service as the Town grows.

Property Tax Comparison

One recommendation that may be easier to recommend than implement would be to raise property taxes. Pagosa Spring's 1.68 general fund operating mill levy is by far the lowest of any Town in Colorado within 150 people of Pagosa's population. According to the Colorado Dept. of Property Taxation 2000 report to the General Assembly, Pagosa's peer cities certified for 2001 a median general fund operating mill levy (not including bonds or earmarked mill levies) of 8.973 mills (average=15.7 mills) and range from 54.637 mills for Akron to 5.96 mills for Bayfield. Each additional mill would raise the annual revenue for Mountain Crossing by $8,938. That means that if Pagosa had the median mill levy for a Colorado Town its size (8.973 mills) Mountain Crossing would generate $80,200 annually in property taxes - well beyond the $15,000/yr under the current property tax rates. At this property tax rate, a $150,000 Town house owner would have to pay about $130/yr for Town property taxes (not including other mill levies).

Sales Tax Comparison

Another difficult recommendation is to raise sales tax. Of the Towns in Colorado that are near Pagosa's size; 7% have a 1% sales tax 36% have the same rate as Pagosa's[6] (2%), and the other 57% have either a 3% or 4% sales tax rate. Each 1% of sales tax generates $154,031 of annual revenue in Mountain Crossing. It is clear that raising sales tax would quickly bring the revenues into balance with the cost of maintaining the existing level of service.

Solutions to the Funding Imbalance

One way to look at the sales and property tax rates is to adjust them into a best case scenario where, the cost to maintain the operations are more reasonably covered by Mountain Crossing revenues. If the Town were to increase its general fund operating sales tax to 2.5% (more than double the current 1%

[6] Actually, consumers pay the Countywide 4% tax, and the Town gets 2% of that.

general fund rate), the annual operations shortfall would be covered (see **figure 45**). A 1% sales tax increase for capital improvements would also decrease the time frame for paying for capital improvements from 17 years to 8 or 9 years.

Figure 45- Sales Tax Increase Scenario - Operations

2.5% General Fund Sales Tax Scenario	
Annual Operations Costs to Maintain Current LOS	$ 522,272
Annual General Fund Operations Revenue	$ 518,866
Annual Shortfall to Maintaining Current LOS	$ 3,406

Increasing the current general fund mill levy (1.68) to the average operations, general fund mill levy for Pagosa's peer towns (15 mills) would come close to raising revenues enough to cover the general fund, operating shortfall as well (see figure 46).

Figure 46. Property Tax Increase Scenario – Operations

15 Operations Mill Levy Scenario	
Annual Operations Costs to Maintain Current LOS	$ 522,272
Annual General Fund Operations Revenue	$ 406,870
Annual Shortfall to Maintaining Current LOS	$ 115,402

Essentially either raising sales taxes 1% or the mill levy up to at least 15 mills, or a combination of the two would yield revenues from a well-balanced project, such as Mountain Crossing, that would cover the costs.

Other Options

Under Colorado taxation laws, raising property and/or sales taxes can be nearly impossible depending on the temperament of the voters. It may also be particularly difficult to make a Town initiated sales tax rate hike palatable to County voters, which is what would be necessary under the current joint sales tax structure.

One way to offset the cost of maintaining the existing LOS is to develop funding mechanisms for new development to pay its share of the capital facilities it necessitates. Such funding mechanisms, while more equitably assigning infrastructure and facility costs to those generating the need, also buffer the general fund from certain types of capital improvement expenditures, thus allowing more general fund dollars to remain directed at operations and maintenance. In this way, capital improvements funding mechanisms can help to maintain (or improve) the existing LOS for both operations and capital facilities improvements. Two funding mechanisms are

particularly suited to providing funding for capital facilities development necessitated by new growth: impact fees, and excise taxes.

Impact Fees

Impact fees re-direct some of the fiscal burden of developing new capital facilities and infrastructure needed for new development away from the taxpayers at large and more directly towards the development generating the need for the expanded capital facilities in the first place. One characteristic of impact fees that make them particularly attractive in the anti-tax climate dominating Colorado is that their imposition does not require a public vote.

While impact fees can serve an important role in financing public infrastructure, they are subject to several limitations and restrictions. Case law dictates that governments or districts can only use impact fees for building capital facilities capacity made necessary by new development and that can be shown to benefit that development. They may not be used for existing deficiencies or operations.

Funds from impact fees must be 'earmarked' for defined capital improvements. Impact fees are subject to rigorous legal standards: demonstration of need, rational nexus, and rough proportionality. While the above are simply technicalities in drafting and administering the fees, the more complex issues are connected to the legal authority of local governments and special districts to impose impact fees. Legal experts assert that there are specific types of authority that allow the imposition of certain types of impact fees, but any impact fee proposal in Pagosa Springs would have to undergo rigorous legal scrutiny before its imposition. Nonetheless, impact fees can be a valuable tool for building a maintaining the capacity of the Town's public facilities and infrastructure. Such fees may be well worth an initial feasibility study to determine whether they might help Pagosa Springs.

Excise Taxes

The imposition of excise taxes requires a vote of the people. Excise taxes are generally deposited in the general fund and can be used for capital improvements, operations, debt, or deficits. Different rates can be applied to different types of development, if, for example, the Town decides that it wants to give commercial development a break so as not to discourage its progress.

Excise taxes may be a good fit for Pagosa's capital improvements, and generally allow more flexibility in collections, expenditures, and administering.

PAGOSA FIRE PROTECTION DISTRICT

Introduction

With responsibility for protecting over 5,300 residential and more than 700 non-residential structures, the PFPD is engaged in a difficult task. In an informal interview, the Fire Chief remarked that since the early 80's calls have increased from about 30 per year to well over 300 in the year 2000. The Chief had no doubt that this growth in demand is directly related to the increased development in Archuleta County. The connection between increased development and increased demand for fire protection is perfectly tangible, given that the primary purpose of the fire district it to project structures and their occupants from fire. This section will quantify the impacts of the proposed Mountain Crossing master plan on the fire district.

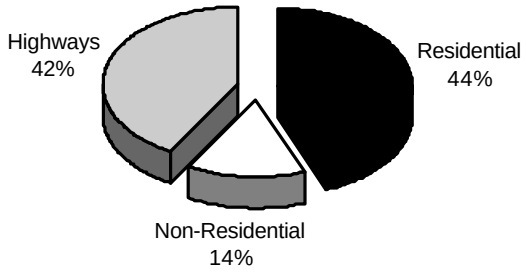
Methodology

The first step is to quantify the proportions of fire district resources that are directed towards residential development and non-residential development using response data from the District. This proportionate share is then applied to the number of residential units and non-residential structures to estimate the level of service for fire protection per residential unit and non-residential structure. The level of service, both in terms of operations expenditures and capital facilities, can then be applied to the projected residential units and non-residential structures in the Mountain Crossing master plan to establish an estimated cost of achieving the current level of service for Mountain Crossing. Finally, tax revenues for Mountain Crossing are projected to see if they will cover the additional costs.

Proportionate Share

The Fire District provides service to three main demand generators: residential units, non-residential structures, and motor vehicle accidents. Response data for 2000 allowed the breakdown of the overall resource expenditures into these categories. While the residential and non-residential responses are clearly attributable to development, the highway responses could be tourists, passersby, truckers, etc. and so cannot be attributed to a specific category of land use.

Figure 48. Fire District Proportionate Share



Demand Units

Data obtained from the Archuleta County Assessor database reveal that there are currently 5,338 residential units and 711 non-residential structures in the District. Since most of the Department's motor vehicle accident responses occur on the highway, the demand units that best represent that portion of the Districts expenditures are average daily trips at the busiest point on SH 160 through Town (i.e. 5th St. ADT obtained from CDOT library database). Mountain Crossing, as currently proposed, includes a tangible number of residential units and non-residential structures. However, it cannot be argued with confidence that its development will lead to increased demand for motor vehicle accident responses, so only the structural components of the proposed development are included here.

Figure 49. Fire District Demand Units

Fire District Demand Units	
2000 Non Residential Structures	711
2000 Residential Units	5,338
2000 Highway Trips	16,192
Mountain Crossing Non-Residential Structures	48
Mountain Crossing Residential Units	304

Current Level of Service

The District currently has 3 full time firefighters, 63 volunteer firefighters, 5 fire stations, and 20 firefighting vehicles. Fiscally, given the proportionate share discussed above, and the fire district's operation budget, this means that it costs the fire district $56 dollars per year per residential unit, and $133 dollars per year per non-residential structure for day to day operations and maintenance.

Given the proportionate share of district resources dedicated to responding to motor vehicle accidents and the CDOT traffic counts at the busiest portion of SH 160 through Town, it costs $17 per average daily trip[7].

Due to the equipment intensive nature of fire fighting, the Fire District's capital facilities (including fire stations and equipment) level of service has a huge bearing on the capability of the District to effectively protect the community from fire. Of the 20 firefighting vehicles mentioned above, 7-8 of them need to be replaced by new ones if the Fire District wants to avoid a decline in the level of service. Given the current replacement values of the good vehicles and the new replacement value of the vehicles that need replacement, the capital facilities LOS is as summarized in **figure 50** below.

Figure 50. Fire District Capital Facilities LOS

Fire District Capital Facilities Current LOS	
Capital Facilities Value	$ 3,305,139
Capital Facilities Value per Non Residential Structure	$ 647
Capital Facilities Value per Residential Unit	$ 273
Capital Facilities Value per Highway Trip	$ 85

In order to maintain the current LOS, each additional residential unit requires $273 worth of capital facilities investment for vehicles and fire stations and each non-residential structure requires a contribution of just under $650 for capital improvements.

Cost of Maintaining Current Level of Service for Mountain Crossing

The number of residential units in Mountain Crossing is defined in the proposed master plan, but, in many cases, the proposed non-residential

[7] An Average Daily Vehicle trip is the average number of times a car passes over a single line across a road in either direction in one day.

square footage does not include a defined number of non-residential structures, so the portions of the project that did not have a specified number of structures had to be estimated (see **figure 49**). This was accomplished by applying the current average size of non-residential structures in Pagosa Springs to the proposed square footage[8] (about 3500 sq. ft.). Having calculated the cost per demand unit for residential units and non-residential structures and the number proposed in the Mountain Crossing plan, calculating the cost of maintaining the current level of service for Mountain Crossing is straightforward. **Figures 51 and 52** summarize the results for both annual operations costs and capital facilities costs.

Figure 51. Fire District Operations Costs & Mountain Crossing

Annual Cost to Maintain Current LOS for Fire District Operations for Mountain Crossing	
Annual Operations Costs to Serve Mountain Crossing Residential Units	$ 40,502
Annual Operations Costs to Serve Mountain Crossing Non-Residential Structures	$ 13,121
Total Operations Cost for Mountain Crossing	$ 53,623

Figure 52. Fire District Capital Facilities Costs & Mountain Crossing

Cost to Maintain Current LOS for Administration Capital Facilities for Mountain Crossing	
Fire District Capital Facilities Cost to Serve Mountain Crossing Residential Units	$ 83,102
Fire District Capital Facility Costs to Serve Mountain Crossing Non-Residential Structures	$ 31,038
Total Fire District Capital Facility Costs to Serve Mountain Crossing	$ 114,140

Total initial costs of capital facilities necessary to maintain current LOS is well over $100,000, which may seem exorbitant, but in reality is only enough to purchase 1/3 of a new fire engine. Operations costs will have to be increased to just over $56,000 to maintain the current level of service. Most likely this will be due to increased demand for firefighters, who, even though they are volunteers, cost the district extra money for training, equipment, pension payments, fuel, wear and tear on equipment, etc.

[8] Calculated by dividing the square footage by the average square footage per non-residential structure existing in Pagosa Springs.

Comparison of Fire District Projected Revenue from Mountain Crossing to the Costs of Maintaining the Current LOS

The Fire District's main revenue sources include the 4.067 property tax mill levy and the specific ownership tax. The mill levy is applied to the projected assessed valuation of the Mountain Crossing Development (see Fiscal Summary of Town Departments section for methodology for estimating assessed valuation). The specific ownership tax is collected from vehicle registrations. According the numerous studies contained in the 1997 Institute of Transportation Engineers Trip Generation Manual, the number of vehicles increases linearly with the number of residential units. This means that specific ownership tax revenue should increase with the number of units in the fire district. Thus, specific ownership tax revenues were estimated by assigning an increase in the specific ownership tax revenues proportionate to the increase in housing units.

Figure 53. Fire District Revenue Projections

Fire District Revenue Projection for Mountain Crossing		
Property Tax	$	36,350
Specific Ownership	$	2,973
Total	$	39,322

Clearly, the nearly $40,000 in revenues generated by Mountain Crossing are not enough to cover the cost of maintaining the current level of service for operations (@ $53,623/Yr) nor will it provide the one time expense of maintaining the current LOS for capital facilities ($114,140). The Fire District will need to generate more revenue through other sources or it will experience a decline in the level of service for both operations and capital facilities.

Conclusions and Recommendations:

- If development in the County and Town continue as they have, and the Fire District does not procure additional funds, the community will most likely experience a decline in the level of service from the Fire District. This may translate into a decrease in the ISO insurance rating for the district at large.
- Currently the Fire District intends to go to the voters with a proposed mill levy increase to pay for capital facility upgrades. Because the operations mill levy does not seem to cover the costs of maintaining the level of service for a relatively dense, high-value development (Mountain Crossing), it may be worth asking for a general fund increase as well.

- In the event that the voters deny the mill levy increase, the Fire District should consider conducting a legal feasibility study for proposing that Archuleta County and the Town adopt Fire District impact fees applied to new development to pay for the cost of Fire District capital facilities.

PAGOSA SPRINGS SCHOOL DISTRICT

Introduction

The residential portion of Mountain Crossing will generate students in the Pagosa Springs School District 50-JT. The purpose of this analysis is to project the number of students that will live in Mountain Crossing at buildout and then compare the costs of educating these students to the projected school district revenues generated by the PUD.

Methodology

The first step was to project the number of students per housing unit in School District 50JT. This was accomplished by dividing the number of enrolled students by the number of housing units in the school district (obtained from the Archuleta and Hinsdale County Assessors). This overall average, which includes housing units of all types (single family, apartments, duplexes, etc.) , can then be applied to the number of housing units expected in Mountain Crossing to obtain a projected number of students in the development at buildout.

Current figures for annual funding per student and the published State/Local/Federal share of the funding responsibility all lend to a relatively straightforward calculation of the current level of service. The acres per student is also an important LOS consideration for Town and School District officials because growing schools frequently need more land. The projected students for Mountain Crossing are applied to the cost per student from both local property tax and from the State to estimate a total cost of educating Mountain Crossing Students. Projected property tax revenues are then compared to the costs in a final fiscal summary.

Proportionate Share

The residential portion of Mountain Crossing is the only component of the proposed development that results in additional students. While students are attributed to residential units, property tax revenues from the entire project will be used to see if it will 'pay its way' for schools.

Demand Units

Currently in the school district, there are .27 students per housing unit (this is low compared to national averages). Given the proposed 304 housing units (mixed Townhouses, apartments, and live/work units), Mountain Crossing may generated 82 public school students at buildout.

Figure 54. School Demand Units

Schools Demand Units	
School District Housing Units in Archuleta County	5,846
School District Housing Units in Hinsdale County	61
Total School District Housing Units	5,907
Average Students per Housing Unit	0.27
Mountain Crossing Housing Units	304
Mountain Crossing Student Generation	82

Level of Service

Currently Pagosa 50JT recieves $5,674 per year per enrolled student, $3,052 of which comes from local taxes (mostly property tax), and the rest of which comes from the State (and a very small portion from Federal programs). The State Dept. of Education determines the total per student funding and the balance between local and State share on an annual basis. These figures are the 2001-2002 funding figures and are considered here to be the current level of service for day-to-day operations.

Figure 55. School District Operations LOS

School District LOS for Operations		
Funded Students		1,598
Per Pupil Funding	$	5,674
Property Tax Funding per Pupil	$	2,730
Specific Ownership Funding per Pupil	$	322

While much of the funding for capital improvements for new schools comes from State taxes, local governments all over the Country have traditionally helped their local school districts come up with the land to build the new schools and athletic fields. 50JT currently has about .061 acres of land per student for school sites, athletic fields, maintenance, and administration facilities.

Figure 56. School District Land LOS

School District Land LOS	
School District Land Inventory	Acres
High School	72
Elementary	15
Remaining	5
Pagosa Vista	5
Total	97
Acres per Student	**0.061**

Cost of Maintaining Current LOS for Mountain Crossing

As stated above, the breakdown between the State and local share of per student funding is subject to change annually. Nonetheless, to determine whether a development will be able to produce the property taxes necessary to cover its share of the local portion of school funding will provide a valuable frame of reference for understanding whether or not the development will pay for itself.

Figure 57. School District Costs & Mountain Crossing

Local Tax Cost to Maintain School District Operations LOS for Mountain Crossing	
Total Operations Costs for Mountain Crossing Students	$ 466,663
Property Tax Operations Costs for Mountain Crossing Students	$ 224,516
Specific Ownership Tax Operation Costs for Mountain Crossing Students	$ 26,448
Total Cost for Local Taxes	$ 250,964

The total cost for educating Mountain Crossing students under the current State funding structure should be just under $500,000 which, when applied to the current local/State/Federal funding breakdown, means that it will cost $224,516 in property taxes, and an additional $26,448 in specific ownership tax (vehicle registration) for a total local cost of almost $251,000.

Revenues generated from property taxes and specific ownership tax in Mountain Crossing should exceed that amount significantly. This does not mean that the funding per student for the District will increase—the State decides this ratio according to a series of formulas and circumstances. However, it does mean that Mountain Crossing will not create the need for

additional State subsidies to cover the education of the students living in it. In short, Mountain Crossing will pay its way for educating the students residing within it.

Figure 58. Projected School District Revenues

Projected School District Revenues from Mountain Crossing	
Projected General Mill Levy Revenue	$ 240,299
Projected Bond Mill Levy Revenue	$ 56,880
Total Projected Property Tax Revenue	$ 297,178
Specific Ownership Tax Revenue	$ 26,448
Total Local Tax Revenue	$ 323,627

Conclusions:

- Mountain Crossing property will generate enough property taxes to cover the local share of the cost of educating students created by the development.
- To secure land for future school facilities, the School District could propose a land dedication/cash in lieu for school land to the County and Town. Currently Pagosa has a 5% land dedication for public purposes provision in their subdivision regulations. However, this section allows that this land be onsite open space. Consequently, Schools are not likely to get any land from Town and County development without a school land dedication requirement. A relatively simple school land dedication and cash in lieu study with the proper political support may could pay off greatly as the Town becomes more developed and land becomes increasingly expensive.

LIBRARY

Introduction

The San Juan Library District has one library and through it they circulate 26,333 books, videos, CDs., etc. to almost 10,000. As the community grows, so does the demand for circulation items, library space, librarian assistance, inter-library loans, and computers. Libraries serve an important function in providing tools that lend to a well-informed, educated local population, yet they are notoriously under funded. The San Juan Library is currently short-staffed, and is quickly running out of room. A look at how one development

proposal might affect the library will provide insights into the long-term trends that may have led to the current plight in the library district.

Methodology

The methodology consists of finding the current level of service in terms of operations cost per capita, number of circulation items (and the value) per capita, and the value of library facilities per capita. The population of the library district was determined by applying average occupancy rates to the number of housing units in the District (obtained from the Archuleta County Assessor's office). The cost of maintaining current level of service for Mountain Crossing can then be determined by multiplying the costs per capita by the projected population. Having determined the costs, they can then be compared to the projected property tax revenues, obtained by applying the District mill levy to the projected assessed valuation of Mountain Crossing to determine whether Mountain Crossing will help or hinder the Library District's current financial circumstances.

Demand Units

The more people there are in a district, the more use the library will experience. The Mountain Crossing projected population is about 7% of the existing population in the library district.

Figure 59. Library District Demand Units

Library District Demand Units	
Library District Population 2000	9,870
Mountain Crossing Population	722

Level of Service

Operations

Given the library operations budget, it costs about $26 per person in the district to run the library. The Colorado average library district operations expenditures is $28 per person in the service area or district[9], so San Juan Libraries appears to be right in line with the State norm for operations level of service. However, in order to maintain this level of service, the Library must continue to increase its operating expenditures as the District grows or it may begin to slip significantly below the State averages and the level of service may decline noticeably. According to the Head Librarian, the staff is already

[9] *Public Libraries in the U.S.,* U.S. Dept. of Education, 1999

working slightly above its capacity and additional library usage and circulation will strain the day-to-day operations even further without additional funding for more staff.

Figure 60. Library Operations LOS

Library Operations Current LOS	
Annual Operations Cost	$ 110,070
Operations Cost per Demand Unit	$ 26.41

Capital Improvements

Capital improvements in the library district consist primarily of the library itself, books, CDs, magazines, and other circulation items inside. The library has 26,333 circulation items, which amounts to 2.6 items per capita in the District. This is a substantially lower level of service than the national average for districts the same size. According to a 1999 report entitled *Public Libraries in the U.S.* funded by the U.S. Dept. of Education, the average number of circulation items per capita for library districts the size of the San Juan District is 5.3 items per capita. The library building itself is currently full, which may partly explain why the circulation items per capita are lower than the national average. The District is currently in need of an addition to the existing library to make more room for circulation items, computers, staff offices, storage, etc.

Figure 61. Library Capital Facilities LOS

Library Capital Facilities Current LOS	
Library Facility and Land	$ 79,074
26,333 Circulation Items	$ 710,991
Total Library Capital Facilities	$ 790,065
Capital Facilities per Demand Unit	$ 80

It appears that library operations LOS, is in line with State averages. However, the library's collection falls short of national averages for libraries its size, and the library itself is physically full.

Cost of Maintaining the Current LOS for Mountain Crossing

It will cost the District an additional $19,000/year to maintain the current LOS for the library with the addition of the Mountain Crossing development. The fact that the library is currently operating at capacity suggests that library

patrons are likely to experience a decline in the level of service unless additional money is generated.

Figure 62. Library Costs & Mountain Crossing

Cost to Maintain Current Level of Service for Mountain Crossing Demand Units	
Annual Operations (annual)	$ 19,062
Capital Facilities and Circulation Items (one time)	$ 57,769
Projected Library District Annual Mill Levy Revenue from Mountain Crossing (annual)	$ 13,407
Projected Library District Annual Specific Ownership Tax Revenue from Mountain Crossing	$ 1,462
Total Annual Revenue from Mountain Crossing	$ 14,869

The library must also obtain nearly $58,000 worth of capital facilities, (5800 sq. ft. of library space and the rest for circulation items). The main revenue sources for the library district are property tax and specific ownership tax.

Given the assessed valuation of the proposed Mountain Crossing development and the library district's 1.5 mill levy, the property tax revenue should be about $13,400 annually. The library's share of the specific ownership tax paid by vehicle owners in Mountain Crossing should total just under $1,500/year, for a total annual revenue just under $15,000. This is not enough to cover the operations costs of maintaining the current LOS. Without additional revenue sources, the Library District will experience a decline in the level of service for operations. The annual revenue collected from Mountain Crossing will not even come close to covering the costs of maintaining the existing LOS for the circulations items and improvements/expansion of the library itself.

Conclusions and Recommendations

- While library officials have done remarkably well with a limited budget in the past, without additional funding sources, the Library will most likely offer lower service levels, in terms of circulation items and the library building itself as well as in terms of patron assistance at the circulation desk.
- The library may consider partnering with the Fire District to help convince the County and Town of the merits of a comprehensive impact fee for public capital facilities. While more equitably assigning the cost of growth to the beneficiaries, an impact fee for library development would, to a certain degree, relieve the operating budget from large capital outlay line items, allowing the general fund to be directed towards operation. The district may also consider some form of user fees attached to

circulation cards that could also help pay for new books and an addition to the existing library building.

- The library may want to consider partnering with the school district in the provision of resources to compensate for decreased levels of services.

WATER

Introduction

Neither water or wastewater service are amenable to the methodologies used previously in this report. Rather, these services are evaluated in terms of absolute capacity of capital facilities. In addition, both systems are evaluated on their ability to provide service at peak demand levels on a daily basis.

Although treated water service infrastructure is not provided by the municipality nor is it a component of Pagosa's budget, this section analyzes existing Snowball water plant flows and residential and non-residential usage by unit type.

Given resident populations, peak population approximations, and commercial activity (as defined by employment) RPI was able to project a number of elements of the proposed developments water usage.

Fortunately, both accurate records of water flows and tap numbers within the district exist. Consequently, true usage scenarios were developed based on peak and off seasons. Peak seasons would include the summer months when the largest number of tourists are in Town and also the highest amounts of water are being used for irrigation purposes. Water flows in the so called "off" or "shoulder seasons" give us a reasonable estimate of simple domestic and commercial usage without tourist or irrigation influences. The final category of use examined is the quantity of water allotted to each resident or (some) commercial usage for a flat rate every month. This analysis does not factor system leakage which can be significant but often remains unknown.

This usage is called "allotment" in the following charts. All water production systems must be built for potential peak capacities, and this assumption is inherent in all of RPI's analysis.

Due to the convoluted nature of the fee structure (i.e. differing rates by type of commercial operation – non-residential uses were considered in "gross", or at the most basic fee level.

While not an integral part of the overall analysis, RPI has conducted a brief overview of existing water district rights.

Methodology

The first step in analyzing water flows is understanding historic flow data, the number of taps in the district, existing plant capacity, and water consumption by unit type (i.e. per capita, square footage, etc…).

Monthly usage tables are converted to average daily usages for both peak and off peak seasons. A working assumption of the analysis considers that much of the expanded use during the peak seasons includes treated water irrigation and additional consumption by tourists/seasonal residents. Conversely, off-season use represents a true average consumption by the year round domestic population.

Based on projected land uses and existing fee structures the consumption and revenue streams required and generated by Mountain Crossing can be projected. Water use by land use type is converted by using standard tables from the American Water Works Association governing average consumption per unit.

Water plant treatment capacity is a function of actual quantity of water that the plant is capable of producing in a 24 hour period for extended periods of time (plants may be capable of meeting peak usages by operating around the clock for short periods of time).

Water storage is an important component of water production and delivery. The snowball plant has nearly 2 million gallons of potential supply. Supply reserves extend the possible outflows of the water plant on a daily basis. However, this analysis considers only the maximum daily capacity of the treatment facility.

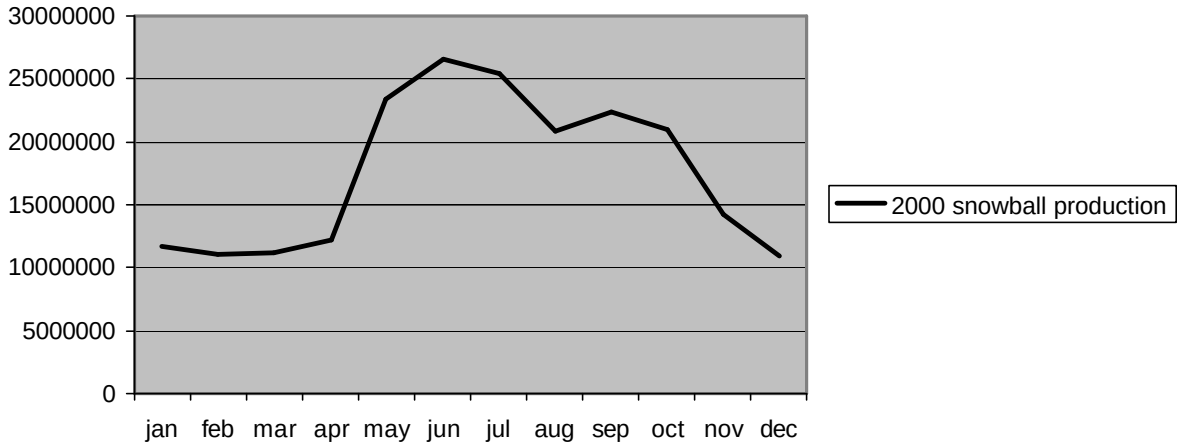
Projected revenues and costs are based on the 2000 projected budget as supplied to RPI by the district. Revenues are separated by actual fee and other revenues. Costs are expressed per thousand gallons based on total water district expense and revenues. Budget was divided using percentages provided by the water district.

The water rights analysis considers a DRAFT copy of absolute and conditional water rights given to RPI by the Pagosa Area Water District. The analysis does nothing more than to make an ideal potential draw if all water sources and delivery systems were made 100% available. Potential is expressed in terms of acre-feet and CFS per day.

Water Analysis

Figure 63 demonstrates the snowball plants large seasonal fluctuations. The significant increase of the summer months likely reflects irrigation uses. The district already has major plans underway to mitigate some of this irrigation with raw water. In addition, the district has attempted to make water conservation a priority in its public relations. Nonetheless, water usage more than doubles during the summer with water usage exceeding 470 gallons per day per equivalent unit—this number is roughly six times the average per capita use as determined by the American Water Works Association.

Figure 63. 2000 Snowball Plant Water Production



Mitigating treated water use with conservation or a raw water system can dramatically increase the effective capacity of a treatment facility thus prolonging the need to make major capital reinvestments in capital infrastructures.

Figures 64 & 65 map the existing conditions and impacts of the proposal.

Figure 64. Existing Water Facilities – Existing Conditions

WATER 2000

Existing

EU (Equivalent Unit)	
Existing # of EU's	1,608

Flow	GPD
Average Daily Off Peak	369,688
Average Daily Peak	766,042

Use (average per EU-gallons)	Daily	Monthly
Off Peak	230	6,989
Peak	476	14,482

Total Use (gallons)	Daily	Monthly
Off Peak	369,688	11,238,500
Peak	766,042	23,287,667

Average Monthly Fee Revenue (per EU)	Existing
Off Peak	$ 13.50
Peak	$ 24.71

Plant Capacity (daily gallons)	Existing	% of capacity existing
	1,500,000	
Off Peak		25%
Peak		51%

Annual Water Use (acre feet)	Existing
	637

Figure 65. Water Facility Impacts – Mountain Crossing Proposal

WATER 2000

Mountain Crossing

EU (Equivalent Unit)	
New	581

Mountain Crossing New Use	Gallons
Off Peak	133,612
Peak	276,861

Use (average per EU-gallons)	Daily	Monthly
Off Peak	230	6,989
Peak	476	14,482

Total New Projected Use (gallons)	Daily	Monthly
Off Peak	133,612	4,061,799
Peak	276,861	8,416,587

Monthly Fee Revenue (per EU)	Projected
Off Peak	$ 13.50
Peak	$ 24.71

Monthly Fee Revenue Projection	Projected
Off Peak	$ 7,846
Peak	$ 14,358

Annual Fee Revenues	Projected
	$ 133,223

Plant Capacity (daily gallons)	Existing	% of capacity projected
	1,500,000	
Off Peak		9%
Peak		18%

Annual Water Use (acre feet)	Projected
	230

Costs	
Total expenditures	$ 4,067,270
Total gallons treated	544,399,452
Total EU's	5,081

Figure 65 continued

Treatment Costs	Per gallon	Per 000' gallons
Cost per gallon	$ 0.0075	$ 7.47
Cost per gallon w/o capital expenditures	$ 0.0026	$ 2.59
Cost per gallon-operations only	$ 0.0017	$ 1.66

Fee Revenue (per gallon)	Per gallon	Per 000' gallons
Off peak	$ 0.0019	$ 1.93
Peak	$ 0.0017	$ 1.71
Mill levy revenue	$ 0.0009	$ 0.87

The Snowball plant operates well within its capacity even during the peak months. The addition of a built out Mountain Crossing will increase demand on the facility considerably but will likely only press the service during the highest use days (to approximately 70% of total capacity). If raw or other water conserving measure is utilized, the plant should operate at excess capacity for many years.

There may be some minor issues with fee revenue and processing costs. While the operations only costs and off peak fee revenues[10] per gallon are nearly commensurate or slightly in the plants favor, it is RPI's position that this is an inaccurate lens through which to view true costs.

It is unlikely that any intensively used, expensive, capital facility such as a water treatment plant will ever operate without any debt obligations. Consequently, debt should be considered as an ongoing component of total operations costs. If this logic is followed we see that a significant portion of the plant's water treatment costs are actually covered by revenue sources other than fees (i.e. the mill levy, and other fees, charges, and funds). Perhaps if the district instituted a more progressive fee structure market cues would be capable of forcing water usage restraint.

[10] Fee revenues are a function of water allotment (in this case 10,000 gallons per EU per month) and fees additional to the allotment. Pagosa Water and Sanitation district charges less per gallon over 10,000 than it does for the first 10,000.

WASTEWATER

Introduction

Wastewater treatment is provided in the Town of Pagosa as a special district. Wastewater is one of the most tangibly limiting factors of any proposed development. Strict State and National laws govern effluent and treatment of sewage. Furthermore, capital facilities for treatment plants can be extremely expensive, occupy significant land, and become maintenance intensive.

Treatment facilities are required to have expansions planned when they reach 80 % of capacity. They are required to begin building the expansion when they reach 95%. If Pagosa's wastewater plant is required to process the waste produced by a fully built-out and occupied Mountain Crossing, the plant may be required to begin making plans for expansion.

Methodology

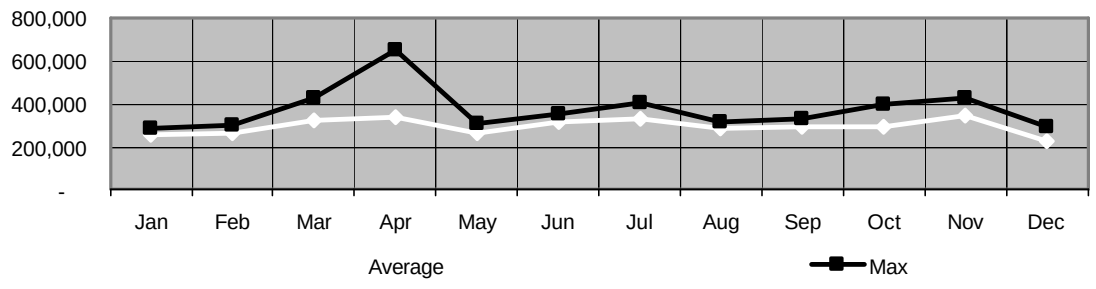
The first step in analyzing wastewater treatment is to consider historical flow data including peak and off-peak seasons. To this end, RPI analyzed daily 2000 sewer flows. These flows were then averaged on a monthly basis with maximum daily (peak) flows taken into account and adjusted for in the final average daily flow matrix.

By using the primary inputs (population, square footage, housing units, etc..) generated for the previous sections of this report, it is possible to calculate the expected wastewater production and revenues based on standardized production numbers produced by the American Water Works Association and existing fee structures.

Wastewater Analysis

Figure 67 shows the average and peak wastewater flows for 2000. Note that

Figure 67. 2000 Wastewater Flows



the plant severely exceeds its operating capacity (500,000 gallons per day) during some periods. These spikes likely represent serious infiltration into the systems pipes. The Town is taking aggressive steps to remedy the problem.

Figure 68 demonstrates what it cost to treat a gallon of wastewater in 2000. The revenues are broken out from straight fee revenue per gallon and all revenues added per gallon. Clearly, Pagosa is recouping enough money in fees to slightly more than cover its costs – however the fee alone is inadequate to cover the actual treatment costs of a gallon of influent. Note that the all revenues category includes plant investment fees.

Figure 68. Wastewater Revenues

Wastewater Revenues (per gallon)		
Cost to treat	$	0.0021
Revenue (fees)	$	0.0016
All revenues	$	0.0022

Figure 69 & 70 shows the increased flow that will be emitted from a built-out Mountain Crossing development by usage type. As with water, the daily capacity of the plant is of preeminent importance.

Figure 69. Wastewater Production – Non Residential

	Sq. Ft. or Units	**Units** (if applicable)	**Non-Res structures**	**Production Factor**	**Daily Production** (gallons)
Auto Sales and Service	10,000		2	0.07	700
Bed and Breakfast	1,200	6	1	168	18480
Hotel	22,000	110	3	117	12870
Office Park	60,000		16	0.09	5400
Restaurant	10,000		2	0.59	5900
Service Commercial	80,000		21	0.21	16800
Shopping Center	60,000		3	0.12	7200
Total	**243,200**	**116**	**48**		**67,350**

Figure 70. Wastewater Production - Residential

Condensed Residential Projections			**Daily Production** (gallons)
	Units	Population	
Apartments	80	178	
Town homes	180	446	
Live/Work Units	44	98	
Total	**304**	**722**	**2,430**

As demonstrated throughout this report, Mountain Crossing is a large development project and this is made clear by the amount of sewage that it might potentially produce. **Figure 71** reveals the projected flow generated by the development.

While commercial and residential have been separated to understand separate flow volumes, their effect on the plant is additive. **Figure 71** shows the projected flows for the existing service area, the quantities of waste potentially produced by the development, and the percentage of plant (daily) capacity that these flows consume.

Figure 71. Sewage Flows

Residential + Commercial	**DAILY**				
Off Peak		**Sewage flow**	**Cost to treat**	**Revenues**	**% of capacity**
	Existing	314,671	655	490	63%
	Mtn. Crossing	69,780	145	109	14%
				Total %	**77%**
Peak					
	Existing	377,525	786	588	76%
	Mtn. Crossing	85,132	177	133	17%
				Total %	**93%**

It is clear that the Mountain Crossing development, if built out, will push the plant to near capacity during the peak months, exacerbate peak days where the plant currently fails, and will significantly increase the normal monthly flows.

Although it can be problematic to derive an accurate estimate, it seems that the Mountain Crossing development may require as many as 300 new taps and thus will generate at least $700,000 in plant re-investment fees. These fees, given replacement costs estimated by the sanitation director, should be adequate to expand or improve the current facility to meet the increased demand. One factor that is normally considered is the price of real estate for lagoon expansion. Fortunately, it appears that the Town has allocated property in its inventory for this purpose so it is should not be a factor. Nonetheless, it may be appropriate for Town to calculate a "buy in" cost for the existing lagoon property and adjust the re-investment fees accordingly.

APPENDIX A: ECONOMIC IMPLICATIONS OF MOUNTAIN CROSSING EMPLOYMENT

BASE INDUSTRY ANALYSIS

Perhaps the best technique to use when first examining a local or regional economy is the model of economic base analysis. This simple theory explains a host of trends and creates a framework through which to consider local and regional economies.

Economic Base Theory operates on the assumption that there is outside demand for a locality or a region's products. When that outside demand grows, the local economy swells--when demand declines the local economy follows suit.

Industries fulfilling the demanded are typically referred to as "base industry" or "base drivers." In Pagosa Springs, demand is for tourist amenities including, outdoor recreation, lodging, cultural events, eating and drinking, retail, and homes. There can be no doubt that tourism is a "base" industry in Pagosa Springs.

Economic base analysis works by categorizing all industry into three classes known as: Direct Basic, Indirect Basic, and Resident Services. There are many variations on this theme, and some economists chose to make the categories more or less complex. This report will limit its examination to these three.

Direct Basic

Direct Basic industries are those that bring dollars from outside of the local economy. We know that money must flow into our economies from the outside or it would not be long until the local economy ran dry of capital, as all of its monetary resources drifted out (from taxes, import of goods, etc.). In Colorado, money historically entered local markets from the outside when extractive industries, (such as manufacturing or agriculture) sold products to purchasers outside of the local economy. Currently in Southwest Colorado, many of these base industries have been replaced by tourism and its attendant manifestations. This has proven to be a very strong, albeit unpredictable, economic base driver for many communities- particularly so for high amenity communities such as Pagosa Springs.

In Pagosa Springs, the direct base industries that fall under the general title of tourism include: the outdoor recreation Industry, eating and drinking

establishments, retail shopping, hotels and lodging, many of the cultural amenities, and a large segment of the construction trade. All of these facilities are the gateway for outside dollars to enter the local economy. Monitoring the strengths and weaknesses of these industries can tell us much about the economy because virtually everything else is dependant on the base drivers. Growth or decline in the economy can be traced to the health of this sector and scrutiny and analysis of the base drivers can even allow for some economic forecasting.

Indirect Basic

Indirect Basic industries compose the second tier of our three-tiered framework. Indirect Basic industries supply the basic industries with the materials and services that they need to conduct business. For restaurants, this might include the food and liquor vendors, lumberyards for the construction industry, textile manufacturers for the retailers, linen cleaners for lodging, etc…

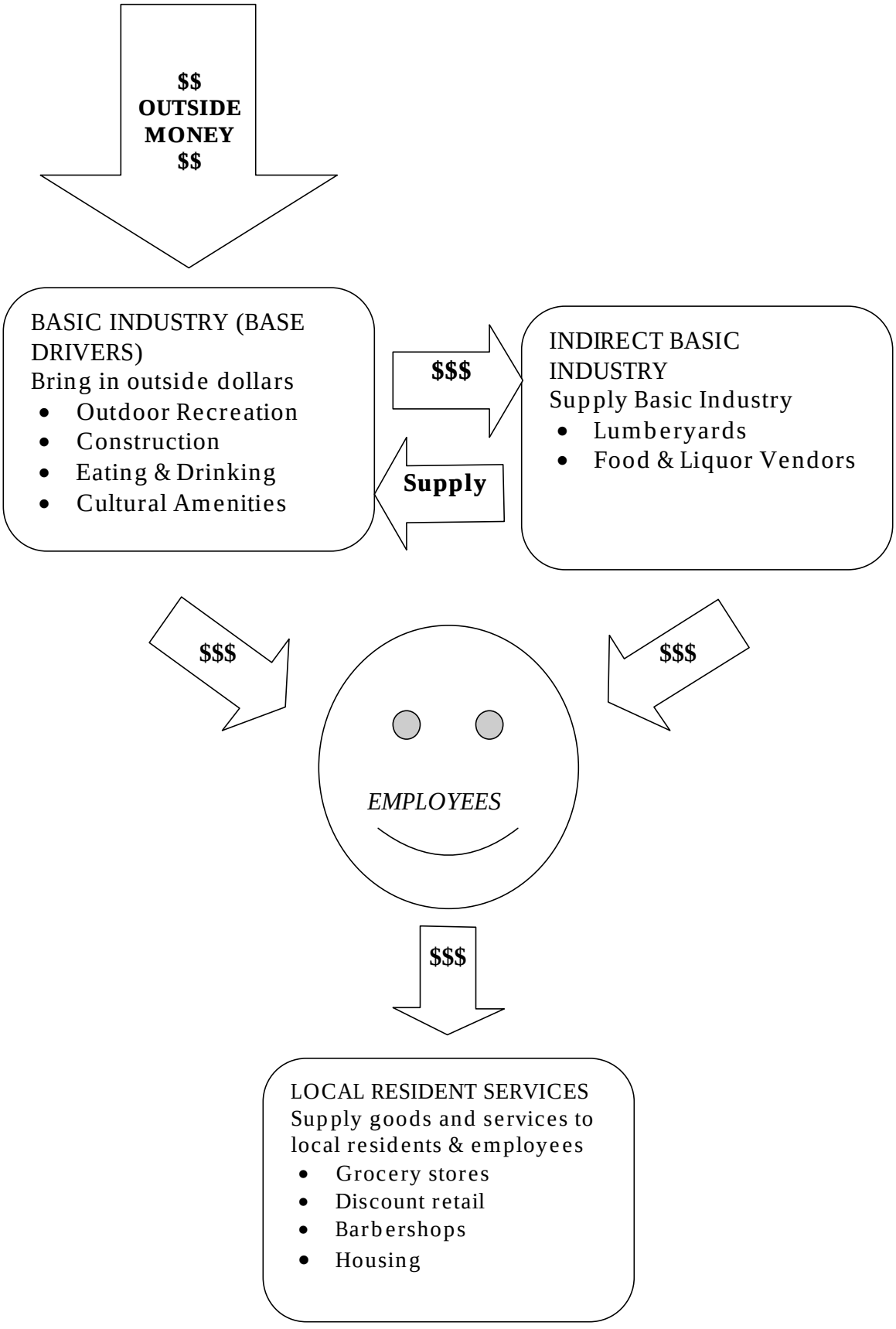
Local Resident Services

The final tier of our framework is that of the local resident services. This category is essentially self-explanatory. Employees form the backbone of the labor force supplying the direct and indirect base industries. Employees earn paychecks and in turn, require and spend that money on services.

Local resident services are simply the commercial services that we all use in our everyday lives to maintain an enjoyable residence in a town or county. They include but are not limited to: grocery stores, barber shops, hardware stores, discount retail, shoe stores, etc… Clearly there is some overlap between the categories. For example, some tourists use local grocery stores while local residents eat at restaurants built primarily for tourists. Fortunately, their are some reliable and long standing techniques establishing ratios for how much each industry is utilized by which group of users. Often these techniques are complemented by surveys and best guesses by both planners and economists who are familiar with the region in question.

Another reason to utilize the Base analysis framework is that existing data is especially amenable to input and analysis. We are capable of tracking employment and income in each industry type—this allows us to know how strongly each industrial group is performing over time. Looking at historical trends and making some future projections is an excellent vantage point for understanding Pagosa Springs and the regional economy.

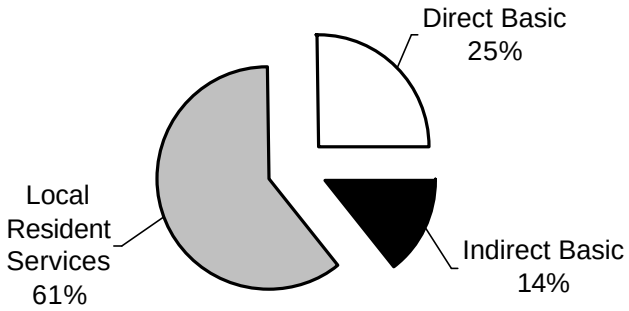
Economic Base Analysis



Mountain Crossing Base Industry Analysis

The Colorado Division of Local Government Demography Section has performed a base industry analysis for Archuleta at a high level of detail. This analysis calculates the percentage of employment for each detailed sector that is direct basic, indirect basic, and local resident service. First, the 755 jobs projected for Mountain Crossing were broken down into industrial categories that match the categories used by the Demography Section. The jobs generated by Mountain Crossing were then applied to the base industry analysis percentage breakdown for each sector respectively. For example, the projected 74 restaurant jobs in Mountain Crossing were applied to the 80% direct basic, 20% local resident services breakdown for eating and drinking employees provided in the Demography Section's base analysis to yield 59 direct basic restaurant jobs and 15 local resident services restaurant jobs in Mountain Crossing. Running through this process for all of the different types of jobs generated by Mountain Crossing Commercial Development yielded the following results:

Base Industry Analysis of 755 Jobs Created by Mountain Crossing Commercial Component



Base Analysis Type	Jobs
Direct Basic	190
Indirect Basic	107
Local Resident Services	458
Total	755

The dominance of the local resident services can be explained by the large employment attributed to the 40000 sq. ft. grocery store as well as the extensive service commercial component, which has a large share of local resident services. The relatively strong indirect base component reflects well on the make-up of the project since indirect base jobs are often stable and well-paying. The direct basic employment is mostly connected to the lodging and restaurant component of this project, and party due to more dispersed spending of tourists and part-time residents.

One important, and often overlooked element of the economic implications of this project is the construction. While it is basically impossible to predict how many of the homes in Mountain Crossing will be built with money brought in from the outside, it is clear that any such activity will generate, at least temporarily, direct basic employment. According to the Demography Section, 28% of all construction employment in Archuleta County is direct basic employment. This can mostly be attributed to the construction of homes by part-time residents and retirees.