

# **Transit Economic Benefit and Future Funding Analysis**



**Prepared for the Municipality of Anchorage  
Public Transportation Department**

**HDR Alaska, Inc. and the Institute of Social and  
Economic Research at the University of Alaska**

**DRAFT  
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## Introduction and Summary

Anchorage's transit system, the People Mover, has been in operation since its initiation by the Greater Anchorage Area Borough in 1974. During the first few years, the transit system operated as a department of the Borough, and with consolidation of the City and the Borough, as a department of the Municipality of Anchorage. As a department of general government, the transit system competes each year for funding with all other services. The environment of annual tight budgets has meant that budgets and transit service levels have been steady to declining over much of the past fifteen years. This has made it difficult to increase the amount and geographic scope of the service. Federal capital grants have been helpful in replacing buses on a timely basis as they age, but reliance on Anchorage's general government operating budget during a time of reduced state assistance has been difficult. In fact, the People Mover has done a good job of maintaining ridership given generally flat to declining real dollar operating budgets.

During this same period, the employment in Anchorage has shifted to proportionately more low-wage retail jobs and fewer high-paying oil industry and similar positions. These changes have produced a larger population of residents who are inclined to ride transit if the service is available. These changes are reflected in steadily increasing ridership and productivities garnered by service levels that have generally stayed steady or decreased over the past decade. Further evidence is provided by the unusual phenomenon of service expansions that have increased, rather than decreased productivities. This is highly unusual and suggests that there is significant pent-up demand for additional transit service.

An objective assessment would suggest that *in order to significantly increase transit coverage and frequency, the People Mover system will need a dedicated, reliable funding source* to cover at least the increment of the additional funding needed.

In recent elections throughout the US, about three-quarters of proposed transit initiatives were successful. As federal transit operating support stagnates, an increasing number of communities are choosing local taxes in order to expand transit services. It is an appropriate time to look closely at two issues:

- The cost-effectiveness of existing and expanded transit services, and
- Mechanisms that might be used to provide stable, long-term funding of transit and paratransit services in Anchorage.

Higher fares and poor service erode a transit system's customer base. Riders will ride only if they have no other option, and if they are able to acquire a car will generally stop riding. Infrequent service means that a rider is often faced with long wait times between connecting buses. Consequently, service trimming and fare increases in response to annual budget squeezes discourage ridership. Such changes are seen by riders as disruptions in their service or routine, and often have an impact on an already tight household budget. Development of a permanent funding base/source helps not only to fund additional service, but to also increase system stability through reducing the number

of budget-driven service and fare changes. More service produces more frequent bus arrivals and less time spent waiting for connecting buses.

## **The Amount of Transit Service Offered in Anchorage – A Peer Comparison**

One basis of comparison of transit service in Anchorage to other similar-sized Western cities is to look at the number of hours of service that are provided per capita. Figure 1 provides a comparison of the amount of service per capita provided in Anchorage to similarly sized urban areas in the West. The amount of service is measured in revenue service hours. A revenue service hour is the time spent by a bus in operation picking up and dropping off passengers. It does not include deadhead or other non-service related bus hours of operation.

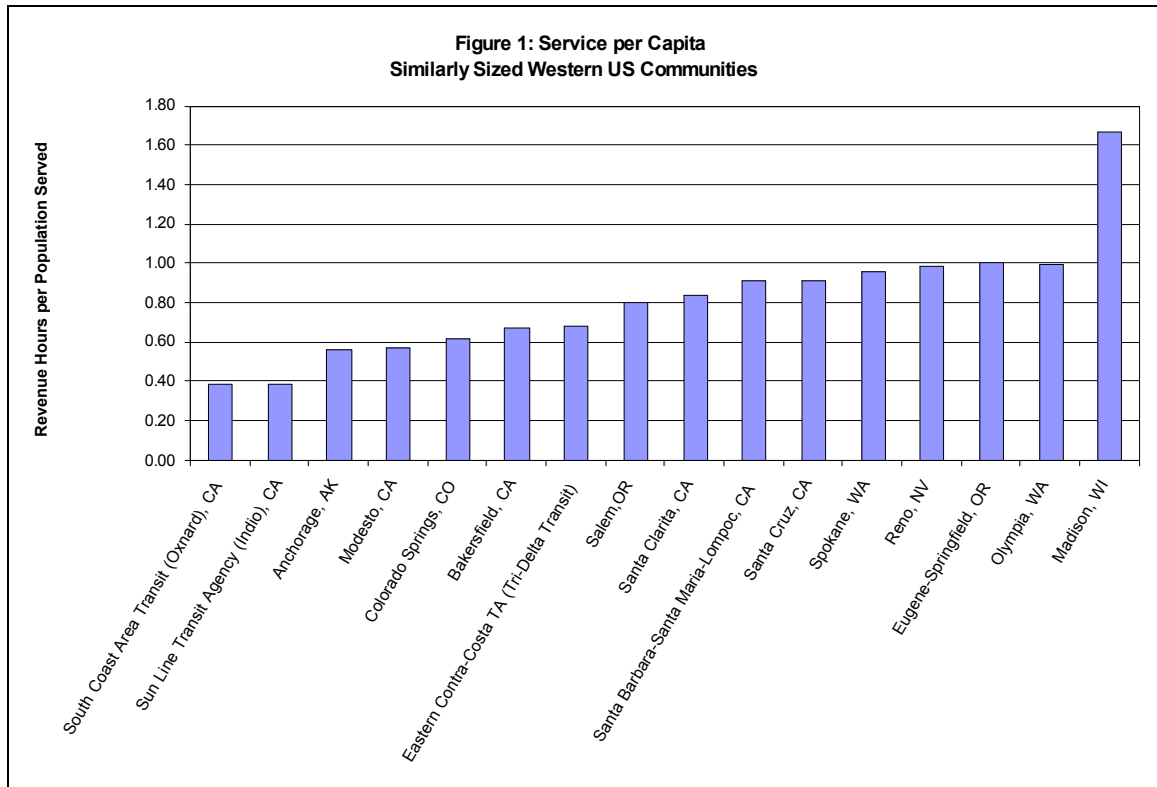
Figure 1 shows that there are communities in the West that provide similar or less service per resident than Anchorage, and that there are a number of communities that provide 50 to 100% more. Many of the transit systems with significantly more service per capita are located in the states of Washington, Oregon and California. These states generally have progressive, growth-oriented transit systems, and have funding mechanisms in place that:

- Allow a community to opt for a local tax that is used to fund transit service;
- Provide a statewide tax mechanism to fund transit service; or
- Have a combination of the two mechanisms.

The purpose of a state-initiated, local funding mechanism is to give local communities the ability to consistently fund local transit services at a level that provides benefits commensurate with the costs. There are also political advantages to a local option tax, in that the state legislature is not directly responsible for raising taxes, so such measures are easier to adopt. The decision to actually impose the levy is left to each local government, and communities without transit are not paying for something they do not use. In addition, the absence of year-to-year budget strife gives potential riders the ongoing sense that the transit service they use will be there year to year and that it is service they can count on long-term.

The data presented in Figure 1 supports the finding that the amount of service operated in Anchorage is less than is provided in many growing, Western communities of comparable size. Recent service increases that have *increased* system productivity support the conclusion that well-planned service additions will increase ridership in greater proportion than the increase in service, and therefore are good public investments.

As the Anchorage transit system grows, it will reach a point where increases in ridership gained for each service hour added are not great enough to warrant the increase. At present, however, both the results of recent Anchorage service increases and a look at comparable data from other Western transit systems suggest strongly that significant additional service increases would be cost-effective, attracting more riders to transit and benefiting the greater Anchorage community.



Additional service benefits Anchorage in a number of ways:

- Less congestion on streets, especially during peak hours.
- Opportunity for residents to spend less on transportation generally and gas specifically.
- Better service frequencies and route densities make it more attractive for commuters to leave their vehicles at home and take the bus.
- A route structure that provides good geographical coverage along with frequent service give lower-income residents, and those with disabilities that interfere with driving reasonable mobility.

## **Results of Recently Service and Fare Increases**

### ***Service Increases***

The most recent comprehensive service changes were implemented in 2002 through 2004 in three stages as part of the Route Restructuring. The service changes implemented recommendations of *The People Mover Blueprint*, the Department's transit development plan completed in May of 2002. The service changes were implemented in three stages:

- July 2002 – Initiated cross-town route 1; suspended Hillside routes and ended the Downtown Area Short Hop (DASH) free service.
- July 2003 – Saturday and Sunday service added to route 1; hourly service to the airport added on route 7; memory headways on several routes.

- July 2004 – Memory headways implemented on all routes except route 45 weekdays; Routes 11, 12 and 76 replaced with Routes 13, 15 and 77; reconfigured Eagle River service and began DART service in Eagle River and Hillside.

### ***Fare Increases***

In addition, during the past five years, three major fare increases were also implemented. The base adult fare, which had only increased from \$0.75 to \$1.00 in the sixteen years from 1986 to 2001, was increased three times between January of 2002 and October of 2005. These increases raised the base fare from \$1.00 to \$1.75, a 75% increase. The youth cash fare and the senior and disabled cash fare both doubled over the same period. The price of tokens approximately doubled, and pas prices increased by about two-thirds. The greatest increase was made to the AnchorRIDES fare, increasing from \$1.00 in 2001 to \$3.00 in October of 2005.

- January 2002 – Fares and passes increased by 20% to 50%. The adult base fare increased 25%.
- January 2004 – Fares and passes increased by 0% to 40%. The youth cash fare was not increased, the adult cash fare increased 20%, and the senior and disabled cash fare increased from \$0.25 to \$0.35, the first increase since a senior and disabled fare was implemented in 1987 (previously, service was free to these riders).
- October 2005 – Fares and passes increased from 17% to 43%. The adult cash fare increased the least at 17%, and the senior and disabled cash fare increased from \$0.35 to \$0.50, or 43%. Other fares were increased by percentages in-between these rates.

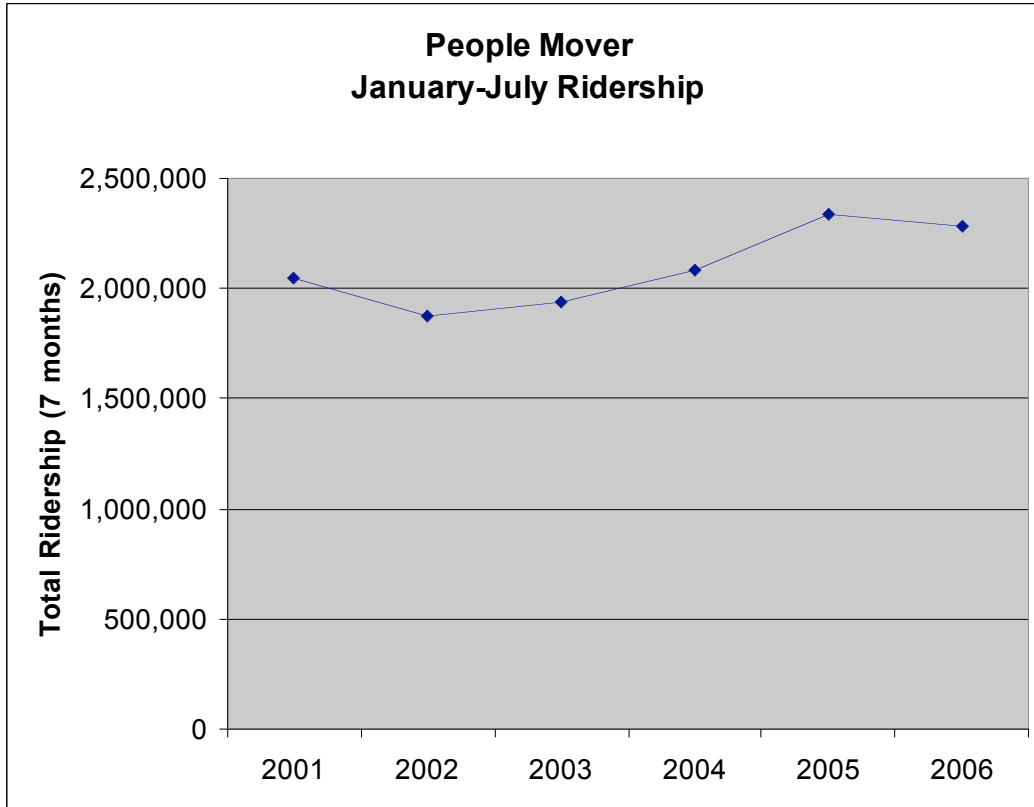
Looking at the first seven months of 2003 through 2006, it is possible to assess the effect of the previous year's fare and service changes. Because both types of changes were implemented over the five-year period, it is not possible to cleanly separate the effects of each. Nonetheless the pattern of ridership response to the changes is reasonably clear. Figure 2 provides an overview of ridership for the first seven months of each year from 2001 through 2006. Looking at the first half the year is useful for two reasons – first it allows a view of ridership about six months following each of the service changes, after riders have become used to the new service patterns and also because it allows us to examine the effects of the most recent fare increase on 2006 ridership.

A summary of observations from the data are as follows:

- The drop from the first half of 2001 to 2002 of over 8% is primarily the product of the January 2002 fare increase. Service was not significantly changed.
- The increase from the first half of 2002 to 2003 of over 3% can be attributed primarily to the first phase of the route restructuring.
- The larger increase from 2003 to 2004 of over 7% is significant in that it represents rider response to both the second phase of route restructuring and the effect of the January 2004 fare increase. The increase would have been greater had there been no fare increase.

- The increase from 2004 to 2005 of over 12% represents the results of the third phase of route restructuring. *This increase is especially notable as the ridership increase exceeded the service hour increase of about 8.5%.*
- The decrease from 2005 to 2006 of 2.2% reflects primarily the effect of the October 2005 fare increase. The only positive aspect of this change is that the downturn was not greater given a fare increase of about 25% overall.

**Figure 2: People Mover Total Ridership, January - July**



### **Comparison of Anchorage Service Expansion and Fare Increase Experience with National Norms**

Between the first half of 2002, before the first phase of route restructuring was implemented, and the first half of 2005, after the third phase was implemented, ridership increased by 24.5%. The amount of service operated increased with the restructuring by approximately 18%. This is unusual in the transit industry, as fare elasticities of demand are such that increased service normally increases ridership, but results in somewhat lower productivities for the system as a whole (ridership increases more slowly than service). If a service increase is well-planned, system productivity will initially fall, and then increase over time. But it is very unusual for productivity to actually increase with an increase in service. This result suggests that the service expansion was well-designed, but more importantly that the level of service was substantially less than optimal for

Anchorage. Added service (more frequent service and new routes) made service attractive to a larger rider base. A number of riders started riding for the first time or more frequently. Pent-up demand for additional coverage and frequency means that adding service will draw more riders per service hour to the Anchorage system and will therefore make the service more useful to residents and more cost-effective to the Municipality. It should also be noted that ISER's analysis found that the cost-effectiveness of the new service exceeds that of the pre-existing service.

When a transit system increases service, ridership normally will increase. The amount of increase in relation to the amount of service increase is termed *service elasticity of demand*. The typical service elasticity of demand is a little less than a negative 0.5. This means that a one percent increase in service on a transit line will result in about a half a percent increase in ridership. There is considerable variation in actual results. In Anchorage, however, the three-stage service increase resulted in increases in ridership that were significantly greater than the norm. This result is significant and suggests that Anchorage can cost-effectively add additional service.

The more frequent the service on each transit route (and the resultant shorter travel times for the riders) the greater fraction of the population that transit will work for and the greater the impact on community traffic, system economics and other ridership-related factors.

### **The Cost-Effectiveness of Existing and Expanded Service**

The Institute of Social and Economic Research (ISER) analyzed the costs and benefits of the Anchorage Transit System in the companion report *The Economic Benefits of Public Transportation in Anchorage*. The overall return to the Anchorage taxpayer was estimated to be \$1.71 in benefits for each tax dollar spent. The benefit-cost ratio of the People Mover bus system alone was estimated to be higher, at a little less than 2:1. The benefits accrue to three primary groups:

- **User Benefits** – residents who use transit instead of driving or taking a cab;
- **Social Benefits** – residents for whom transit is their only alternative for travel outside their homes; and
- **Community Benefits** – benefits that accrue to all community residents as a result of having fewer cars on the road.

Table 1, below, summarizes the benefits.

**User Benefits:** Riders who substitute transit for their cars, a taxi, or other modes of travel get benefits totaling \$8.428 million. This total is net of the fares paid. Most of these benefits—\$6.772 million—accrue to People Mover bus riders, but Van Pool riders get \$1.281 million, Share-a-Ride accounts for \$.221 million, and \$.154 million accrues to AnchorRIDES clients. These benefits include savings from reduced vehicle-operating and ownership costs (including parking), reduced taxi fares, and the reduced likelihood of injury in a traffic accident. The calculation of these benefits takes into account and nets out the cost associated with the longer elapsed time of many of the trips using the People Mover system.

**Table 1: Anchorage People Mover Economic Benefits (2004)**

<b>People Mover Economic Benefits (million \$)</b>	
<b>Total Benefits</b>	<b>\$14.155</b>
User Benefits	\$8.428
Social Benefits	\$2.896
Community Benefits	\$2.832

**Social Benefits:** For residents without alternative transport options, the transit system provides access to jobs, medical services, social services, educational opportunities, recreation, and other events. The value of this access totals \$2.896 million, primarily attributable to the People Mover bus system (\$2.666 million), but with contributions of \$.182 million from AnchorRIDES, \$.044 million from the Van Pool program, and \$.004 million from Share-a-Ride. Most of this benefit accrues to riders, but employers benefit because the labor pool is larger and more stable, and taxpayers benefit because social service costs are lower when access is enhanced.

**Community Benefits:** Transit reduces the number of cars on the road, creating saving of \$2.832 million for the community in reduced costs for providing parking and other transportation-related services, reduced costs associated with congestion and traffic accidents, and reduced pollution-related costs. These reduced costs are mostly in the form of lower taxes. In addition, the community benefits from the option, for residents who do not regularly use public transit, of using the bus system on occasions when their private transportation is unavailable. The bus system produces most of these benefits (\$2.092 million). The Van Pool service accounts for \$.602 million; Share-a-Ride, \$.132 million; and AnchorRIDES, \$.006 million.

**Benefit-to-Cost Ratio:** These benefits are considerably more than the public property tax support provided to the People Mover system, which in 2004 was \$8.256 million. Since this local public support provides \$14.155 in benefits, the return for each dollar of property taxes invested in the system is \$1.71—a benefit-to-cost ratio of 1.71.<sup>1</sup>

As to the benefits of expanding transit service in Anchorage, the ISER analysis concluded that:

- An increase in ridership of 10 percent resulting from residents switching from cars and taxis to the bus would increase the cost-benefit ratio, as some additional ridership could be accommodated at little extra expense.

<sup>1</sup> The analysis excludes federal spending that supports the transit system from these calculations since it is not a cost to Anchorage residents. Likewise, we exclude any benefits of the People Mover system that accrue outside the Anchorage municipality.

- The cost-effectiveness of added service outlined in the Blueprint would increase the overall system cost-benefit ratio if ridership increases by 11 percent or more, or about 325,000 trips per year. Given the results to date, in which ridership has increased by 24.5 percent *without full implementation of the Blueprint*, the new service has increased the system's cost-benefit ratio.

## **How Do Other States and Cities Fund Transit?**

In order to gain some perspective on transit in Anchorage, it is helpful to examine how other cities that are comparable to Anchorage fund transit and how funding mechanisms affect transit system size and ridership per capita. A telephone survey of transit systems in the Western US was conducted to gather data on the area served by each system and on how the transit system financed its operations. Survey findings suggest that transit systems in the West serving communities of similar size to Anchorage (not a lot larger or smaller) generally fell into three groups:

- Transit systems with a permanent funding mechanism that covers a large portion (60 percent or more) of the operating costs;
- Transit systems with a permanent funding mechanism that covers less than half the system operating cost; and
- Transit systems funded (like Anchorage) predominantly by local general government funding sources that are not dedicated.

The mechanisms used generally varied based on the state. For example, among the western states the mechanisms varied considerably:

- States with a mechanism that covers a large portion of operating costs:
  - Washington – a sales tax of 0.6 of 1% or less can be enacted at the local level and is dedicated to local transit system funding. Limited state funding includes a rural mobility program and a commuter trip reduction program. State funding for transit (not including the local sales taxes) averages \$1.75 per capita.
  - Oregon – a payroll tax of 0.6 of 1% can be implemented at the local level and is dedicated to local transit system funding. Some state funding is provided, which is derived from cigarette taxes and state general funds, for elderly and disabled transportation, and payroll tax revenue (\$4.4 M in 2002) supports transit district capital and operating costs. Overall, state support (not including the payroll tax) averaged \$6.80 per capita in 2002.
- States with a mechanism that covers about half of operating costs or less:
  - California – a state act (Transit Development Act) with funding from a 0.5 of 1% sales tax provides funds to local systems. State transit funding in 2002 averaged \$62 per capita.
- States with a small state program that covers some operating or capital costs:
  - Montana – state funds assist transit operations (\$75,000 from state gas taxes in 2002) and elderly and disabled transportation (\$315,000 from motor vehicle license fees). This state transit funding in 2002 averaged \$0.43 per capita.

- Idaho – Funding is derived from the Idaho Transportation Department’s miscellaneous revenues to fund elderly and disabled person transportation and averaged \$0.18 per capita in 2002.
- States with no state-level mechanism in which transit systems generally rely on local resources:
  - Alaska
  - Colorado
  - New Mexico
  - Utah
- State (rather than local or a state mechanism implemented locally) funding for transit varied from nothing in Alaska and the four other western states listed just above to \$371 per capita in the District of Columbia, and \$89 to \$118 per capita in the eastern states of Delaware, Maryland, New Jersey and New York. California was the far and away the western state with the highest level of transit funding at \$62 per capita.

Several considerations must be analyzed for each possible mechanism and its applicability to Anchorage:

***How much revenue would be generated each year from practical levels of each funding source, and how would the amount change over time as inflation affects the income stream?***

In states in the West, the local sales taxes and payroll taxes fund 65 to 75 percent of transit system operating costs in the states relying on these dedicated mechanisms – notably Oregon and Washington. They raise roughly \$100 per capita per year. Federal operating grants, farebox and advertising revenue typically make up the remainder of the operating budgets. These systems are in the enviable position of not having to compete each year with other public services for operating funding. In other states with more limited statewide taxes, the taxes cover a smaller percentage of the operating costs.

A fuel tax implemented within the Municipality would raise approximately \$1.4 to 1.7 million per year per penny of tax charged per gallon of motor fuel sold. The State Department of Revenue does not track gas sales in Anchorage independent of statewide sales. This estimate is based on the results of the State’s tracking of ethanol sales in Anchorage during the winters of 2002 and 2003, and estimated results of statewide motor fuels tax increase generated by the State Department of Revenue in 2003.

***How easy or difficult will it be in the future to adjust the mechanism to produce more revenue in order to keep up with inflation and the needs of the community and the transit system?***

General sales taxes tend to keep up with inflation as the prices of the taxed goods and services overall grow comparably to the rate of inflation. Payroll taxes should generally track inflation reasonably well also, unless there is a downturn in economic activity combined with inflation, which would be an unusual scenario. Gas taxes assessed on a cents-per-gallon basis will vary with the amount of gas sold and will be negatively

affected by inflation. Until the recent run-up in gas prices to \$3.00 per gallon, gas tax revenues had been growing as the number of cars owned per person and the vehicle miles traveled per person have both grown faster than population. This dynamic has changed as many people have reduced the amount of driving done and/or have shifted to the purchase of more fuel-efficient vehicles. Consequently, there is concern over the ability of gas taxes to keep up with inflation. Some jurisdictions have solved this problem by indexing the gasoline tax to the rate of inflation. Nonetheless, there still is widespread concern in the transportation industry that gas taxes will not keep up with inflation due to increased use of alternative fuels and the assumed resumption of stricter auto fuel efficiency standards. The general sense is that fuel taxes will be a less reliable mechanism over time that will need to be augmented by other funding mechanisms.

***How would each mechanism be enacted – through a popular vote, action by the Anchorage Assembly, the State Legislature, or other bodies?***

Although both the Anchorage Assembly and the Alaska Legislature have the authority to enact new taxes, both typically are reluctant to do so without a confirming popular vote. It is against the Alaska Constitution for the State to enact a tax dedicated to a specific purpose. Although the issue hasn't been tested, the Municipal Attorney's office believes that the prohibition applies to the state but not to local government.

***How much time would be required to prepare, approve, and enact each of the mechanisms?***

Taxes that are not used in Anchorage or Alaska will generally take more time to develop and implement than adjustments to existing tax or financing mechanisms. So a sales tax would take longer to implement, assuming it would pass public muster than an increment on the property tax or gasoline sales tax.

***And most importantly, how receptive is the Anchorage public to each of the mechanisms? How likely is it that a specific tax or fee will be accepted by those who will need to approve it – the voters, the Assembly and/or the Legislature?***

Political prognostication is always difficult and very hard to get right even with the benefit of surveys to get a sense of public attitude. Past public surveys in Alaska (ca. 2000) have shown that a majority of respondents are against a gas tax that simply supports local government, but that switches to a majority in favor if the tax is dedicated to transportation construction and maintenance.

## **Funding Options for the Future**

The options for Anchorage are constrained by the limited variety of taxes assessed in Anchorage. If implemented on a local basis (Anchorage acting alone, rather than a statewide mechanism that local government can opt to implement) the tax options would be limited to:

- A gasoline tax that would be dedicated to road maintenance and transit operations. – generally a good option as the State has not increased fuel taxes

- since the 60's, and as the tax is fair – the more one uses the road system, the more one pays; and larger vehicles generally use more fuel and pay more the taxes than small vehicles. It will, however, be a challenge to raise gas taxes with recent run-ups in gas prices and unprecedented crude oil price increases.
- Property tax dedication is difficult to sell as property taxes are the primary mechanism to fund services in Anchorage. Dedication to one purpose confronts the question of what about other services? It is doubly difficult when the current political focus is on broadening local tax base beyond property taxes. What might be feasible is the dedication of a portion of property taxes to road and transit operating and maintenance support.
  - Dedication of a fraction of sales tax revenues (if sales tax is put in place) for road maintenance and transit operations may be possible. A sales tax has been discussed in recent years although has not generated enough favor to be both placed before the voters and pass.

## **Conclusions**

- The recent service increases were very successful – more successful than would have been predicted, based on experience with other transit systems.
- Fare increases over the past five years have been substantial from any perspective. Fares should stabilize for the next few years both to let ridership grow and to avoid a disproportional impact on residents who are least able to pay.
- The best options for more stable funding for transit in Anchorage include dedication of a portion of a local gasoline tax, the remainder of which would go toward road maintenance, or a statewide mechanism (possibly for both roads and transit) that local government could opt into.