

CAPITAL IMPROVEMENT PLAN FOR ROAD IMPACT FEES

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CAPITAL IMPROVEMENTS PLAN FOR ROAD IMPACT FEES

The Development Fees Act authorizes cities and counties to impose a Road Impact Fee based on a Capital Improvements Plan (IFCIP). (5-8-1 to 5-8-42 NMSA 1978) Bernalillo County implemented this process. (BCC Chapter 46, Impact Fees) This Road IFCIP Plan is prepared in compliance with State and County requirements. The intent of Road IFCIP is to help ensure that adequate transportation facilities are available to serve new growth and development.

Principles

The Bernalillo County Road IFCIP is guided and should in part be evaluated by the principles of clarity, repeatability, and social justice. The principle of clarity is that the content should be straightforward and well organized. The principle of repeatability is that all calculations used in assessing impact fees should be stated. The principle of social justice is that the plan should encourage desired development while enabling mobility for all persons independent of where they live or their personal income.

The Principle of Clarity

The Bernalillo County Road IFCIP is organized in the following sections: Principles; Basic Concepts; Methodology; Road Projects; Impact Fee Calculation; Credits; and Updates. Through these sections of the Plan, essential and required Road IFCIP information is provided.

This principle is applied to how the impact fees are calculated and to how the road projects are selected. In this Plan, the criteria for selecting projects are listed and applied. Importantly, Road IFCIP projects are part of the Bernalillo County Capital Improvements Plan (CIP). As a result, there is direct and ongoing public participation in identifying needed projects.

Applying the Principle of Clarity to the Road IFCIP, if the concept and calculation and application of the impact fee are clear, it is accountable to the public we serve. If Road Impact Fees are accountable to the public, they can be refined through public input. Ongoing improvement of the Road IFCIP leads to the second principle.

The Principle of Repeatability

To meaningfully revise impact fees tomorrow, the calculations must be repeatable today. Each equation used to calculate the demand, supply and assessment of Road Impact Fees is included in this Plan. The equations demonstrate how to estimate the travel demand from new development, the supply provided by road capital improvement projects, and the cost of supplying service to new development.

The Impact Fee Calculation section includes a definitive table that presents the service unit cost by unit of new development by type of land use. Every step in the calculation of the Road Impact Fee is documented in this Plan.

Applying the Principle of Repeatability to Road Impact Fees, if the calculations are repeatable, the process is transparent and accountable to the public. Our concern for the well-being of all of the persons in Bernalillo County leads to the third principle.

The Principle of Social Justice

Bernalillo County elected officials and other public servants care about the well being of all of the people. Accordingly, this plan provides an equitable assessment of impact fees for all types land use. In addition to equitable fees by land use, road impact fees should not have an adverse socioeconomic impact on persons with the lowest income. There are two ways in which this principle is proposed in the Road IFCIP: a recommended waiver rather than deferral of impact fees for affordable housing, and credits for infrastructure supporting multimodal travel.

The first way in which this principle is proposed is a waiver for affordable housing. At present, the Bernalillo County code provides for a deferral of impact fees for affordable housing. The State Development Fees Act was amended in 2001. Municipalities and counties were given the authority to waive the impact fee for affordable housing projects. (5-8-3 NMSA 1978) Waiving road impact fees for affordable housing would simplify the process of removing a financial burden from this group of individuals and families.

Second, persons with lower incomes benefit the most from options to the use of personal automobiles. Bernalillo County has identified trip generation credits for which developers may apply. The credits may be related to specific transit, bicycle and pedestrian improvements, as well as for mixed-use and Transit-Oriented Development.

Credits are briefly described in the Basic Concepts section of this report. The Credits section details how the credits may be calculated and applied.

If the impact fee is consistent with social justice, it is accountable to all of the people we serve. The three principles presented above guide the development and provide a way of evaluating the Road IFCIP.

Basic Concepts

The Road Impact Fee Capital Improvement Plan is based on the concept that new development impact fees should be based on the travel demand new development generates and that Bernalillo County supplies. This service is in addition to any transportation improvements immediate to specific developments that are required to mitigate traffic safety and operational concerns. The impact fee is for transportation

system impacts and for capital improvement projects that provide new development with an acceptable level of transportation service.

Basic concepts form the foundation for Road Impact Fees. These basic concepts are the impact fee service area; service units; service period; service unit credits; and, socioeconomic forecast period.

Service Area

New Mexico State Statute and Bernalillo County Code provide two options for defining the service area for the calculation and implementation of impact fees. The first is to define the boundary of a county as a single service area and to apply one set of impact fees. The second is to divide the boundary of a county into more than one service area and to apply different impact fees among these sub-areas. Bernalillo County has adopted a single service area, the unincorporated area of Bernalillo County, for the Road IFCIP. The basis for this decision is that the transportation network connects all areas of the County and serves all areas of the County.

Not all roads serve Bernalillo County as a whole. Roads are assigned different functional classifications depending on the service they provide. (*A Guide for Highway Functional Classification, 2000*) Local roads serve specific areas of the County, and are not eligible for road impact fees. Within the Service Area, roads eligible for impact fees are arterial and collector roads shown in Map 1 at the end of this section, and are consistent with the Roadway Functional Classification System designated by the Mid-Region Council of Governments. (Current Roadway Functional Classification System Map, 2010) To comply with State Statute and County Code, arterial and collector roads within the Service Area must be separately analyzed.

Service Units

Service units create the link between demand (traffic generated by new development) and supply (road capacity to accommodate the traffic). The service unit for the Road IFCIP is Lane Miles of Capacity (LMC). The demand is based on Vehicle Miles Traveled (VMT) generated by new development. The demand (VMT) divided by supply (LMC) is the volume/capacity (v/c) ratio. The v/c ratio indicates how much road capacity is consumed, and whether or not the supply meets the demand. As the v/c ratio increases and approaches 1.0, a road approaches capacity and the Level of Service deteriorates from the highest Level of Service (LOS), A, to the lowest, F.

Bernalillo County has established Level of Service “D” as the minimum acceptable service. This approach to serviceability of roads is consistent with the Mid-Region Council of Governments Metropolitan Transportation Plan that includes the unincorporated area of Bernalillo County. The 2035 MTP differentiates among roads that operate above or below threshold v/c ratios which are related to LOS. (*2035 Metropolitan Transportation Plan, 2012*)

Service Period

The road service unit can be calculated for an hour, day or year. Bernalillo County road demand is expressed in Daily Vehicle Miles Traveled (VMT_D), and road supply is expressed in Daily Lane Miles of Capacity (LMC_D). In the Road IFCIP, the new LMC_D service unit demand is supplied through additional capacity provided by Capital Improvement Projects. For every VMT_D generated by new development, the road impact fee charges the cost to construct an additional LMC_D .

A primary reason for using daily travel as the service period is that it incorporates the diverse transportation demands created by new development. Daily trips include home-based work trips, home-based trips for other purposes, and non-home based trips.

To ensure all trips are represented, the typical numbers of trips in the Albuquerque Metropolitan Planning Area during different periods of the day are multiplied by the average trip lengths for each period. The three periods of the day grouped to estimate the number and length of trips are: the AM Peak Period (6:30 to 9:30 AM), the PM Peak Period (3 PM to 6 PM), and the Off-Peak Period (all other hours of the day). The length of the trips varies among these three periods.

An alternative service period for trip estimation is the PM Peak Hour. The PM Peak Hour has been used by Bernalillo County in the past to calculate road impact fees. The importance of basing the Road IFCIP on daily trips and trip lengths rather than PM Peak Hour is summarized as follows.

- The majority of trips each day occur in the Off-Peak Period. PM Peak Period statistics do not include the majority of trips and trip lengths to be supplied new development through the Road IFCIP.
- Trip lengths vary by time of day. Daily Vehicle Miles of Travel incorporates the variability of trip length, while PM Peak Vehicle Miles of Travel does not.
- Travel statistics calculated from PM Peak Hour Trips are less accurate than those calculated from Daily Trips.
- Given the difference between PM Peak period trip lengths and trip lengths during other periods of the day, use of PM Peak Hour Trips to calculate VMT introduces systematic rather than random bias into the estimates.
- Because PM Peak Hour and Peak Period trips are typically longer than Off-Peak trips, use of PM Peak Hour VMT will tend to over-estimate demand from new development.
- The proportion of PM Peak Hour trips to Daily Trips varies by type of land use. Use of a PM Peak Hour trip generation rate underestimates daily trip generation for some land uses and overestimates daily trip generation rates for other land uses. As a result, depending on the land use, some developers will pay disproportionately higher fees for the road service they receive. Equitable assessment of impact fees should be based on all trips generated by a land use over the course of a day.

- PM Peak Hour trips in the predominantly rural areas of Bernalillo County have different trip purposes and trip lengths than the trips taken over the course of a day. Daily trips are more representative of travel demand from new development in rural areas.
- PM Peak Hour trips in predominately urban areas of Bernalillo County are associated with intersection capacity and are measured in terms of delay. This is experienced when traveling congested urban roads, and is explicit in some government procedures for calculating road impact fees. (Adams, 1999) The Road IFCIP Service Unit to meet new development demand for Vehicle Miles of Travel is Lane Miles of Capacity, and therefore the appropriate service period in urban areas is travel over the course of a day.
- Bicycle and pedestrian trips are associated with shorter trips than characterized by work trips and related trip chains in the PM Peak Hour. It is important to associate the potential use of bicycle and pedestrian facilities for trips with shorter lengths. Trips in the Off-Peak Period have a shorter length than the PM Peak. Daily rather than Peak Hour statistics are helpful in assessing the impact of extending non-motorized mobility options.

For these reasons, Bernalillo County uses a twenty-four hour day as the service period for estimating trips in the calculation of the Road IFCIP.

Service Unit Credits

In addition to assessing new development for traffic it generates and road infrastructure supplied by the County, a basic purpose of impact fees is to encourage responsible development that meets the policy goals of the County. Credits are ways in which impact fees can be reduced.

Road IFCIP credits must be applied for by the developer and approved by the Bernalillo County Impact Fee Administrator. There are development off-site and on-site improvements that remove passenger car trips from the roadway by providing transit, bicycle and pedestrian options. The authors of the State Statute and Bernalillo County Code were visionary in their inclusion of public transit bus bays, bicycle and pedestrian facilities in the Road IFCIP. It is increasingly clear that road improvements are not the sole answer to our transportation needs. Decreasing use of personal automobiles by improved transit, bicycle and pedestrian facilities will free road capacity. This is also permissible under the Development Fees Act, which allows for, “the use, consumption, generation or discharge of a service unit”. (5-8-2 NMSA 1978) Credit can be given for the generation of a service unit by removing passenger car trips from eligible roadways. While services from impact fees assessed are delivered within a specific period, credits are not identified with a specific period of time because they preserve future transportation options.

One type of credit a developer can propose to offset the capacity caused by a development is to construct public use transit bays, bicycle and pedestrian facilities. This

credit is for improvements off the development site, on regionally approved routes that have a direct impact on the capacity of roads eligible for Bernalillo County Road IFCIP funds. The procedure for calculating this credit is described in the Credits section of this plan.

Another way to decrease trips using personal automobiles is to build mixed use developments in which some trips within the development are made by walking or by bicycle. This is referred to as “internal capture” of trips within a development. (*Trip Generation Handbook*, Second Edition) The procedure for crediting a development for internal capture of trips is also presented in the Credits section.

In addition, Transit-Oriented Development (TOD) can remove passenger car trips from roadways and relieve demand on roadway capacity. The number of vehicles removed by a TOD depends on the density of the development and access to transit on an eligible road in the Service Area. The process for estimating TOD capacity generation is addressed in the Credits section.

Bernalillo County is interested in development. The Road IFCIP is a means to ensure new development pays for its impact on County roads. Credits are a way to encourage how the transportation system is connected for all modes of transportation, and how new development encourages trips other than by personal automobile. If a developer believes other credits should apply, potential credits should be discussed with the Impact Fee Administrator.

Socioeconomic Forecast Period

The estimate of new development is based on approved socioeconomic forecast. The indicator used to project travel demand is the forecast increase in Bernalillo County population by household. The socioeconomic forecast is based on Single Family Dwelling Units (SFDU). Use of household daily trips generated over the course of a day takes into account both home based and non-home based trips.

The Mid-Region Council of Governments (MRCOG) has forecast population to 2035 in the current Metropolitan Transportation Plan (2035 MTP). A forecast to 2020 is used because ten years is the minimum period a road improvement must serve new development to be defined as a capital improvement. The demand generated by new development over the ten-year period is used to identify needed infrastructure improvements that will increase capacity and accommodate the new trips.

The Mid-Region of Governments (MRCOG) has forecast population to 2020 using a short range forecasting process that was independent from the 2035 Metropolitan Transportation Plan (MTP) socioeconomic forecast. The reasons for producing an independent forecast rather than using an interim year of the existing 2035 MTP forecast are as follows:

1. The MTP forecast is based on a region-wide perspective of growth and land use and was not developed specifically for an individual subarea.

2. The MTP forecast is by nature a long-range forecast and is meant to be considered over a 25-year timeframe.
3. The MTP forecast is based on county level population projections developed by Geospatial and Population Studies (GPS) at the University of New Mexico in 2008. Due to the timing of the release, the projections do not incorporate the hefty impacts that the housing market crisis and the economic recession have had on growth.
4. The 2010 Census population figures that were released following GPS's projection series reveal that the 2010 projection for Bernalillo County was 7.6 percent high.

Methodology

Transportation Demand and Supply

Demand for Transportation Service

The 2020 forecast was developed by MRCOG using a combination of three demographic techniques: a housing unit method, a trend method, and components of change method. This allows for a combined approach to forecasting that incorporates the status of the housing market, recent employment forecasts, a reduction in migration, and historical trends. The forecast increase in households is used to forecast the increase in road demand. Households represent occupied housing units.

The increase in number of households is multiplied by the number of transportation service units that the households will consume over the course of an average day. This is calculated as the minimum demand created by new development that the Road IFCIP must supply.

New Development demand for transportation service is expressed as Daily Vehicle Miles Traveled (VMT_D). Average VMT_D is calculated in Equation 1, and is the sum of the number of trips a household takes in the AM Peak, PM Peak, and Off-Peak Periods multiplied by the lengths of each trip.

Average VMT_D = daily vehicle miles traveled

T_{AM} = household trips between 6:30 am and 9:30 am (AM peak period)

T_{PM} = household trips between 3:00 pm and 6:00 pm (PM peak period)

T_{OP} = household trips during all off peak (OP) hours (OP periods)

L_X = trip length for period X (AM, PM, OP)

$$\text{Average } VMT_D = T_{AM} \times L_{AM} + T_{PM} \times L_{PM} + T_{OP} \times L_{OP} \quad \text{Equation 1}$$

The second equation calculates the total travel demand for forecast new development in Bernalillo County. Average household VMT_D multiplied by the projected

increase in households over a ten-year period gives the total demand generated by new development.

D_{ND} = new development demand

N_{NH} = new households projected over a 10 year period in the service area

$$D_{ND} = N_{NH} \times \text{average } VMT_D \quad \text{Equation 2}$$

Supply of Transportation Service Units

Supply of transportation service to New Development is expressed in units of Daily Lane Miles of Capacity. Daily Lane Miles of Capacity (LMC_D) is the service unit Bernalillo County provides to meet the demand. LMC_D is the amount of traffic that a one-mile lane of road can carry each day. All Road IFCIP projects are expressed in terms of this service unit. The LMC_D equivalency for transit, bicycle and pedestrian projects is presented in the "Credits" section.

For Arterial and Major Collector roads, the equations used to estimate the average Daily Lane Miles of Capacity are as follows.

K = proportion of ADT occurring during the peak hour

ADT = average daily traffic, both directions (veh/day)

V = peak hour volume (veh/hour)

$$K = \frac{V}{ADT}$$

Equation 3

LMC_D = daily lane miles of capacity at specified LOS [(veh-miles)/day]

C = capacity at specified LOS (veh/hour)

$$LMC_D = \frac{C}{K}$$

Equation 4

The LMC_D for each Road IFCIP project is calculated using Equation 4 for new construction and reconstruction projects involving new lanes of traffic. The LMC_D is summed for all Road IFCIP projects. This is the total LMC_D provided by the new construction and road improvements in the Road IFCIP and is shown in Equation 5.

$LMC_{D_{pn}}$ = Daily Lane Miles of Capacity for project 1, 2,

$$\text{Road IFCIP } LMC_D = \sum_n [LMC_{D_{p1}} + LMC_{D_{p2}} + \dots + LMC_{D_{pn}}]$$

Equation 5

The New Development Demand from Equation 2 is compared with the total supply of transportation service in Equation 5. There are two comparisons. The first is to check for future unmet demand, and the second is to check for current unmet demand.

The first comparison is that the Road IFCIP total LMC_D should equal or exceed the new development generated VMT_D . If the new capacity supplied does not equal or exceed new demand, then new development is under-served. In this instance, new development would pay only for the service provided, not for future unmet demand. There should be, and in this Road IFCIP there is, an excess capacity provided in the Road IFCIP projects compared with new development demand.

The second comparison of demand and supply concerns current unmet demand. The total demand provided in the Road IFCIP must be reduced by any unmet service to current residents. New development is expected to pay for the service it generates, not to bring current development up to minimum County standards. The Bernalillo County Code specifies that the acceptable transportation Level of Service is "D". Level of Service (LOS) D is defined as traffic that presents, "... a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed." (*Highway Capacity Manual 2010, page 16-8*)

If the Road IFCIP projects include improving existing roadways, the service on these roadways to current residents must be LOS D or above. LOS E is characterized by significant delays, and LOS F is characterized by extremely low speeds, with intersection high traffic volumes and excessive delays. If the LOS to current residents is E or F for projects in the Road IFCIP, the capacity improvements required to bring the road or roads to LOS D to meet current demand must be subtracted from the increased supply provided by those projects.

C_N = net capacity (above or below LOS D volumes) (veh/hour)

$V_{LOS D}$ = volume at LOS D (veh/hour)

V_C = current volume (veh/hour)

$$C_N = V_{LOS D} - V_C$$

Equation 6

In Equation 6, there is a capacity surplus if the net capacity is greater than zero, and a capacity deficiency if the net capacity is less than zero. If there is a capacity deficiency, then the portion of the new capacity added by the IFCIP project to bring the road to LOS D is subtracted from the project's new capacity. This provides the amount of the project capacity available to new development; or, Project Available Capacity in Equation 7.

C_A = project available capacity @ LOS D or better (veh/hour)
 C_{A+} = added capacity (veh/hour)

$$C_A = C_{A+} + C_N$$

Equation 7

The capacity required to correct a deficiency for a specific project is divided by the total capacity of the IFCIP project to provide a project capacity deficiency adjustment factor. The adjustment for roads currently operating worse than LOS D is shown in Equation 8.

C_{ADJ} = capacity deficiency adjustment

$$C_{ADJ} = \frac{C_A}{C_{A+}}$$

Equation 8

The adjustment factor is applied to the service units and cost of the specific project where there is a deficiency. This factor ensures that for each Road IFCIP project currently operating below the County standard LOS, new development is not assessed to correct current deficiencies and is assessed only for the additional service it receives.

The available capacity of each Road IFCIP project is calculated and summed. The adjusted project cost of providing this capacity is summed. The Road IFCIP cost divided by the Road IFCIP available capacity is the average cost per LMC_D . This is the cost per service unit for the capital improvements.

$$\begin{aligned} \text{Road IFCIP available } LMC_D \\ = \sum_n \left[LMC_{D_{p1}} \times C_{ADJ_{p1}} + LMC_{D_{p2}} \times C_{ADJ_{p2}} + \dots + LMC_{D_{pn}} \times C_{ADJ_{pn}} \right] \end{aligned}$$

Equation 9

Project n cost = PC_n

$$\begin{aligned} \text{Road IFCIP Adjusted Cost} \\ = \sum_n \left[PC_1 \times C_{ADJ_{p1}} + PC_2 \times C_{ADJ_{p2}} + \dots + PC_n \times C_{ADJ_{pn}} \right] \end{aligned}$$

Equation 10

$$\text{Cost Per Service Unit} = \frac{\text{Road IFCIP Adjusted Cost}}{\text{Road IFCIP Available Capacity}}$$

Equation 11

The cost per service unit is applied to the daily trip generation rate by land use. The result is the gross Road Impact Fee. (Equation 12)

Daily Trip Generation Rate = Daily trips by land use adjusted for pass by and diverted link trips from the ITE Trip Generation Manual

Road Impact Fee = Cost Per Service Unit × Daily Trip Generation Rate

Equation 12

The daily trip generation rate for Commercial/Retail land use is the lowest rate published in the ITE Trip Generation Handbook. Daily trips by land use are adjusted for pass-by and diverted trips. Service required for new development is concerned with primary trips. Pass-by trips are intermediate stops along the route between a primary origin and destination. Diverted trips are intermediate stops between the origin and destination from roads close to the primary route. The Road Impact Fees by unit of land use, adjusted for pass-by and diverted trips, are shown in Table 4. Pass-by and diverted trips are a reduction in the daily trip generation rate for Commercial/Retail land uses. The highest value in the range of pass-by and diverted trips published by ITE were applied with one exception. ITE Trip Generation Manual pass-by and diverted link trips for a shopping center were disproportionately high. These were normalized by using values for shopping centers in the western states of California and Colorado which would better approximate conditions in the state of New Mexico. This approach to calculating Commercial/Retail primary trips provides the most equitable value for impact fee determination.

Road Projects

Selection Criteria

The capacity to meet the demand from new development is supplied from capital improvements included in the Road IFCIP. There are several criteria used in the selection of Road IFCIP projects. Road project criteria are consistent with the Bernalillo County Capital Improvement Plan.

Capital Improvement Plan

Bernalillo County prepares and the Bernalillo County Commission adopts a Capital Improvement Plan (CIP). The CIP lists and establishes the priority for capital improvements. The CIP is updated every two years. Priority projects are approved for

inclusion in a ballot measure that seeks public approval for the County to issue General Obligation Bonds to help fund the projects.

The CIP benefits from public input. Public meetings are led by County Commissioners throughout Bernalillo County. The CIP also benefits from input from Bernalillo County staff. Operational and safety issues observed by County staff, for example, are included in the assessment of road projects.

The Road IFCIP is a subset of the CIP. CIP projects considered for the IFCIP provide capacity to meet the demand from new development as well as meet the other criteria for project selection.

All Road IFCIP Projects are in the Bernalillo County CIP. This ensures that there is an open and ongoing public process for projects in the Road IFCIP. This also ensures that road priorities identified in neighborhood, sector and area development plans are considered when selecting Road IFCIP projects.

Consistent and accurate calculation of other funding sources for Road IFCIP projects is another benefit from integrating the Road IFCIP with the CIP. Reduction in the new development cost of capital improvements through other public funding sources is identified in the CIP database for each project in the Road IFCIP. New development provides part of the tax base for transportation infrastructure improvements. To avoid the potential for new development paying for capital improvements through an impact fee and through other public funding mechanisms, project specific costs are reduced on the basis of other public funding. By basing the Bernalillo County Road Impact Fee on specific projects that supply demand created by new development, the actual rather than estimated additional public funding for these projects is used to discount the Road Impact Fee. The cost reduction through other funding sources takes place at the project level and before calculating Road IFCIP project cost per service unit.

Roadway Functional Classification

Specific types of roads are eligible to supply the capacity to meet demand from new development. This is important because the roads must improve the County-wide transportation network that serves both current and future development. Roads eligible to be included in the Road IFCIP have or are proposed by Bernalillo County to have a functional classification of an arterial or a collector roadway.

Improvement Period

New development road impact fees are based on the service new development receives. The criterion of identifying the improvement period helps ensure that the service paid for is service received in a timely manner. Projects are assessed on the basis that the service from the capital improvement will be available to new development within seven years of impact fee collection.

Impact Fee Calculation

Demand for Transportation Service

Forecast household increase is the data element used in the forecast of road demand. The projected increase in the number of households in the unincorporated area of Bernalillo County from 2010 to 2020 is 2,809. (MRCOG 2012)

Nationally, an average Single Family Dwelling Unit generates 9.57 trips each day. (*Trip Generation*, 8th Edition) The most current survey in the Albuquerque Metropolitan Planning Area is **9.8** trips each day, **and are summed** from the following trip types: Home-Based Work, 1.8 trips; Home-Based Non-Work, 5.2 trips; and Non-Home Based, 2.8 trips per day (*Middle Rio Grande Regional Travel Model Recalibration and Validation Report, 2010*). The national trip generation rate is used in the Road IFCIP because it is consistent with the local rate and because the source of the national rate is the basis for trips generated by unit of new development.

Table I shows the most current survey data for the Mid-Region in New Mexico, with the calculation performed in Equation 1 for Household VMT_D . Trip characteristics identified in Table 1 are provided by MRCOG (*Middle Rio Grande Regional Travel Model Recalibration and Validation Report, 2010*).

Table 1
Household Daily Trips, Trip Length, and Vehicle Miles Traveled
Mid-Region of New Mexico

Period	Trips/Day	Proportion of Daily Trips	Average Trip Length (miles)	VMT_D
AM Peak	1.74	20%	3.3	5.7
PM Peak	2.29	26%	3.5	8.0
Off-Peak	5.54	54%	3.9	21.6
Daily	9.57	100%		35.3

With Equation 1 solved for Household VMT_D , Equation 2 can be solved by multiplying 35.3 VMT_D by the forecast increase in households in the service area, 2,809 households. (MRCOG, 2012) This provides the New Development Demand expressed in VMT_D . The minimum New Development Demand to be supplied by the Road IFCIP projects is 99,158 VMT_D .

The MRCOG forecast for the unincorporated area of Bernalillo County is a conservative estimate of demand from new development, and is calculated as the minimum that must be provided to accommodate new housing. The New Development Demand is the minimum to ensure that the service units provided meet the demand.

The 2020 population forecast represents a most likely growth scenario given current plans and policies and in light of historical trends and activity. Factors such as annexations, unplanned major developments, and other unforeseen future events, by their very nature are difficult to anticipate and incorporate into a forecast. The 2020 population forecast most likely represents a conservative estimate of future growth considering that it was developed on the heels of a recession that resulted in a dramatic downturn in the housing market. Population between 2010 and 2020 is projected to increase by 7.0% which is identical to the pace of growth in the unincorporated county between 2000 and 2010. The MRCOG 2020 forecast in household growth is used to calculate the minimum required New Development Demand.

Supply of Transportation Service

Supply of transportation service to New Development is expressed in units of Average Daily Lane Miles of Capacity. Daily Lane Miles of Capacity (LMC_D) is the service unit Bernalillo County provides to meet new development demand.

The equations used to estimate the Average Daily Lane Miles of Capacity are applied as follows.

K = proportion of ADT occurring during the peak hour
 ADT = average daily traffic, both directions (veh/day)
 V = peak hour volume (veh/hour)

$$K = \frac{V}{ADT}$$

Equation 3

The value of K was calculated for all roads in the service area. K varies by road, but is typically at or near 10% per day for roads eligible for the Road IFCIP. Bernalillo County roads functionally classified as Arterials have an average PM Peak Hour Factor of 9.19%. The mean for Principal Arterials is 8.71% and Minor Arterials is 9.99%. The range among all Arterial roads is from 7.08 to 12.13%. Bernalillo County roads functionally classified as Collectors have an average K value of 10.14%, with a range of 4.32 to 19.09%. Use of $K = 10.0\%$ is therefore acceptable for the mean and range of PHF values of eligible roads in the Service Area.

LMC_D = daily lane miles of capacity at specified LOS [(veh-miles)/day]
 C = capacity at specified LOS (veh/hour)

$$LMC_D = \frac{C}{K}$$

Equation 4

The peak hour capacity per lane is defined by the County and regional standard of LOS D. LOS D is 800 vehicles per hour for arterial roads in the Mid-Region of New

Mexico; and, 675 vehicles per hour is LOS D for collector roads. Most Bernalillo County Roads operate at LOS D or better.

Arterial Road LMC_D

$$LMC_D = 800 \text{ vehicles per lane}/0.1$$

$$LMC_D = 8000 \text{ vehicles per lane}$$

Collector Road LMC_D

$$LMC_D = 675 \text{ vehicles per lane}/0.1$$

$$LMC_D = 6750 \text{ vehicles per lane}$$

The LMC_D for each Road IFCIP project is calculated using the functional classification LMC_D for new construction and reconstruction projects involving new lanes of traffic. The LMC_D by project is summed for all Road IFCIP projects. This is the total LMC_D provided by the new construction and road improvements in the Road IFCIP in Equation 5.

$$\text{Road IFCIP } LMC_D = \sum_n [LMC_{D_{p1}} + LMC_{D_{p2}} + \dots + LMC_{D_{pn}}]$$

Equation 5

Road IFCIP Projects to Supply the Service

Using the project selection criteria identified earlier, the projects included in the Road IFCIP are listed in Table 2, and are shown in Map 1. The number by each project in Tables 2 and 3 are the map project location numbers.

**Table 2
Road IFCIP Projects
Bernalillo County 2012**

No.	Project	Termini	Length (miles)	Improvement	Added Capacity ¹	Cost
1	Paseo del Norte NW	Atrisco Vista to Ventana	2.000	Add 2 lanes	32,000	\$18,168,920
2	2 nd St. NW	Alameda to 4 th St.	1.416	Add center left turn lane	567	9,209,121
3	Alameda Blvd NE	Ventura to Eubank	0.998	Build 2 lanes	13,473	7,978,000
4	Osuna Blvd	2 nd St. to Railroad	0.290	Add 2 lanes	4640	2,028,000
5	(Tower) Bridge SW	New Coors to Old Coors	0.510	Add 2 lanes	8160	2,007,000
6	Sage SW	City Limits to Old Coors	0.520	Add 2 lanes	7020	2,225,000
7	Arenal SW	Atrisco to Tapia	0.420	Add center left turn lane	142	2,269,000
8	Blake and Coors	Intersection		Add turn lanes	10,750	2,000,000
9	118 th St. SW	Pajarito to Pavo	1.310	Build 2 lanes	20,960	4,943,000
		Gibson to I-40	2.620	Build 4 lanes	83,840	17,816,000
10	Gun Club SW	End of road to 118 th St.	0.530	Build 2 lanes	7155	2,000,000
11	Unser SW	Dennis Chavez to Pajarito	2.100	Build 4 lanes	67,200	13,492,000
12	Sunport SE	Broadway to I-25	0.700	Build 4 lanes	22,400	18,925,000
13	2 nd St. SW	Woodward to Rio Bravo	1.500	Add center	600	6,118,754
		Rio Bravo to Desert Rd.	2.500	left turn lane	844	
					279,751	\$109,179,795
Other Public Funding						(25,932,795)
Total						\$83,247,000

¹ New capacity added by the project expressed in Daily Lane Miles of Capacity

The total cost for construction in Table 2 includes reduction for committed project public funding to which development contributes. In addition to the project-level funding, \$25,932,795 in additional funding for the projects has been committed and is shown in the Table. For the Road IFCIP Projects, 24% of the total cost is committed from other public funds. Other committed funds are subtracted to represent the potential contribution of new development to infrastructure improvements. This step helps avoid the potential for new development paying twice for the same service. The current capacity supply was calculated for each project in accord with Equation 6. This is shown in Table 3.

Table 3
Road IFCIP Project Current Capacity
Bernalillo County 2006
(Vehicles Per Hour Per Lane)*

No.	Project	Termini	Current PM Peak (vphpl)*	LOS D Capacity (vphpl)	Existing Supply
1	Paseo del Norte NW	Atrisco Vista to Ventana	90	800	710
2	2 nd St. NW	Alameda Blvd to Alameda Rd	365	800	435
		Alameda Rd to 4 th St.	180	800	620
3	Alameda NE	Ventura to Holbrook	0	675	new
		Holbrook to Eubank	0	675	new
4	Osuna	2 nd St to Railroad	430	800	370
5	Bridge SW (Tower)	New Coors to Old Coors (Tower Alignment)	170	800	630
6	Sage SW	City limits to Old Coors	335	675	340
7	Arenal	Atrisco to Tapia	510	675	165
8	Blake/Coors SW	Intersection	395	675	280
9	118 th SW	Pajarito to Pavo	0	800	new
		Gibson to I-40	0	800	new
10	Gun Club SW	End of road to 118 th	0	675	new
11	Unser SW	Dennis Chavez to Pajarito	0	800	new
12	Sunport SE	Broadway to I-25	0	800	new
13	2 nd SW	Woodward to Rio Bravo	435	800	365
		Rio Bravo to Desert	185	675	490

For all projects in the Road IFCIP there is a capacity surplus. Therefore, Equations 7 and 8 to correct for capacity deficiencies were not applied.

The total added capacity from these projects is 279,751 LMC_D (Equation 9). The total cost of all Road IFCIP projects, after reduction for other committed public funds is \$83,247,000. (Equation 10). The cost per Road IFCIP LMC_D rounded to the nearest dollar is \$298. (Equation 11)

Impact Fee Calculation

This section presents the definitive table for calculation of impact fees for developments by land use. Table 4 applies Equation 12. The cost per service unit is multiplied by the trips per unit of land use to provide the impact fee.

Table 4
Bernalillo County Road Impact Fee Schedule*

LAND USE (Trip Generation Manual Code)	Unit of Land Use	Daily Trips/ Unit	Pass-by and Diverted Trips	Adjusted Trips/ Unit	Impact Fee
Residential					
Single-Family Detached (210)	Dwelling	9.52	0	9.52	\$2,837
Apartment (220)	Dwelling	6.65	0	6.65	\$1,982
Condominium/Townhouse (230)	Dwelling	5.81	0	5.81	\$1,731
Mobile Home (240)	Dwelling	4.99	0	4.99	\$1,487
Senior Adult Housing Detached (251)	Dwelling	3.68	0	3.68	\$1,097
Senior Adult Housing Attached (252)	Dwelling	3.44	0	3.44	\$1,025
Others Not Specified	Dwelling	5.52	0	5.52	\$1,609
Office					
General Office Building (710)	1000 GFA	11.03	0	11.03	\$3,287
Business Park (770)	1000 GFA	12.44	0	12.44	\$3,707
Others Not Specified	1000 GFA	11.74	0	11.74	\$3,499
Commercial/Retail					
Shopping Center (820)	1000 GFA	12.50	6.88	5.62	\$1,675
Quality Restaurant (931)	1000 GFA	33.41	21.38	12.03	\$3,585
Fast Food Restaurant (934)	1000 GFA	195.98	152.86	43.12	\$12,850
High Turnover Sit-Down Restaurant (932)	1000 GFA	73.51	56.60	16.91	\$5,039
Free-Standing Discount Superstore (813)	1000 GFA	21.39	8.56	12.83	\$3,825
Free-Standing Discount Store (815)	1000 GFA	25.53	20.17	5.36	\$1,598
Supermarket (850)	1000 GFA	68.65	51.49	17.16	\$5,114
Convenience Market (851)	1000 GFA	330.00	303.60	26.40	\$7,867
Convenience Market with Gasoline Pumps (853)	Fueling Position	370.25	340.63	29.62	\$8,827
Gasoline Service Station (944)	Fueling Position	73.00	68.62	4.38	\$1,305
Drive-In Bank (912)	1000 GFA	68.23	60.72	7.51	\$2,238
Hotel/Motel (310/320)	Room	3.47	0	3.47	\$1,034
All Suites Hotel (311)	Room	4.49	0	4.49	\$1,338
Others Not Specified	1000 GFA	12.83	0	12.83	\$3,825
Industrial					
General Light Industrial (110)	1000 GFA	6.97	0	6.97	\$2,077
Industrial Park (130)	1000 GFA	6.83	0	6.83	\$2,035
Warehouse (150)	1000 GFA	3.56	0	3.56	\$1,061
Mini-Warehouse (151)	1000 GFA	2.50	0	2.50	\$745
High-Cube Warehouse (152)	1000 GFA	1.68	0	1.68	\$501

Manufacturing (140)	1000 GFA	3.82	0	3.82	\$1,138
Others Not Specified	1000 GFA	3.69	0	3.69	\$1,100
Institutional					
Elementary School (520)	Student	0.45	0	0.45	\$134
Mid-School (522)	Student	0.72	0	0.72	\$215
High School (530)	Student	0.71	0	0.71	\$212
Junior/Community College (540)	Student	0.93	0	0.93	\$277
College (550)	Student	1.25	0	1.25	\$373
Day Care Center (565)	Student	2.50	0	2.50	\$745
Hospital (610)	Bed	3.00	0	3.00	\$894
Nursing Home (620)	Bed	2.00	0	2.00	\$596
Church/Synagogue (560/561)	1000 GFA	4.35	0	4.35	\$1,296
Others Not Specified	1000 GFA	4.35	0	4.35	\$1,296
Terminal Uses					
General Aviation Airport (022)	Employee	14.24	0	14.24	\$4,244
Truck Terminal (030)	Employee	6.99	0	6.99	\$2,083
Others Not Specified	Employee	10.62	0	10.62	\$3,165

*If the proposed development land use is not listed and the 'Others Not Specified' land use does not represent the development, then the ITE Trip Generation Manual, 9th Edition (Manual) should be the default reference. If the land use is not listed in the Manual the developer has the option of conducting a trip generation study in compliance with the ITE Trip Generation Handbook (*Trip Generation Handbook, 2004*).

Road Impact Fee Deferral and Credits

A deferral or waiver removes affordable housing from the calculation and assessment of road impact fees. Credits reduce the Road Impact Fee assessed for a new development. Both reductions in road impact fees are described below.

Affordable Housing Deferral

The Bernalillo County Code defines affordable housing as any housing unit that will be sold for less than \$130,000.00. A developer may apply to the Bernalillo County Impact Fee Administrator for deferral of the road impact fee by providing documentation demonstrating that all or a portion of the dwelling units in a development qualify as affordable housing. Under current County Code, the fee may be deferred for up to 40% of the housing units. This plan recommends that the fee be waived rather than deferred to simplify the process. Whether deferred or waived, the Impact Fee Administrator will determine whether or not the application for affordable housing should be approved. This determination may be made in consultation with Bernalillo County Public Works Division. The number of approved affordable housing dwelling units is removed from the Road Impact Fee Schedule calculation in Table 4.

Trip Generation Improvement Credit

Transit, bicycle and pedestrian improvements may be proposed by a developer and if approved by the Impact Fee Administrator, can result in credits that reduce the Road Impact Fee assessment for a development. Person trips involving the proposed improvement are converted to the number of passenger car trips replaced. Calculating transit, bicycle and pedestrian trips by their reduction in passenger car trips allows all modes of transportation to be expressed in the same Road IFCIP service units. The Road IFCIP credit is calculated on the basis of the improvement reduction in VMT_D .

There are three steps in calculating the Trip Generation Credit. The first step is identifying the number of transit, bicycle and pedestrian trips that are needed to replace a passenger car trip; or, passenger car equivalent trips. The second step is to identify characteristics of eligible transit, bicycle and pedestrian improvements and the estimated person trips from the improvements. The third step is to convert person trips to passenger car trips and calculate the potential Road IFCIP credit.

The average vehicle occupancy in the Mid-Region of New Mexico is 1.4 persons per vehicle. (*Albuquerque Area Model Update Project, Travel Survey, 1993*) The total number of person trips generated by other modes of transportation, whether transit, bicycle or walking, is divided by 1.4 to estimate the number of vehicles removed from the roadway. This is the number of passenger car equivalent trips generated by an improvement to another mode of transportation.

If the personal trips generated by an improvement is known by period of the day, then the number of trips during a period is multiplied by the trip length for that period. The resulting VMT by trip period is summed for the day. The result is the passenger car equivalent VMT_D generated by an improvement to another mode of transportation.

If the personal trips generated by an improvement is not known by period of the day, then the weighted daily mean trip length is multiplied by the number of passenger car equivalent trips to calculate the VMT_D . The daily weighted average trip length is taken from Table 1, and is the sum of the trip lengths for the three periods of the day divided by three. The weighted mean trip length is 3.7 miles. Use of this trip length will tend to over-estimate the VMT from off-peak period trips, which are the majority of trips during the day. This effectively increases the potential credit from an improvement to other modes of transportation and is an incentive to make a transit improvement.

Person trips are generated by improvement to a mode of transportation. The three modes of transportation eligible for Road Impact Fees are transit, bicycle and pedestrian. The person trips generated by each mode are considered separately.

Transit

Transit trips are an option that persons may choose for Home-Based Work trips. The 2010 Census Transportation Planning Package (CTPP) reported that public transportation accounted for 2.4 percent of Home-Based Work trips in Albuquerque and 2.2 percent of Home-Based Work trips in Bernalillo County. However, the Bernalillo County statistic includes the City of Albuquerque in its sample. Therefore, given that the overall county's share of transit commuters is lower than the City of Albuquerque's, it is certain that the unincorporated county share is below 2.2 percent. The lower transit share in unincorporated Bernalillo County is directly related to the lack of transit service.

Home-Based Work trips are often longer distances than many workers choose or are able to walk or bicycle. For this reason, transit is a critical component of multimodal options to improve transportation in the service area. A developer can provide a transit improvement off-site from their development and receive Road IFCIP credit for the VMT_D impact of the improvement. Under the Development Fee Act, transit bays are the transit improvement eligible for Road Impact Fees.

Credit for transit improvements is based on the number of persons who will use a transit service if there is an available bus stop within a reasonable walking distance of their household. The number of persons who will take the bus because of installation of a bus bay is site specific. The factors a developer should consider in preparing a site specific assessment of the VMT_D generated by a bus bay are: transit corridors, transit service, Transit-Oriented Development, and bus capacity. Each of these factors is discussed below.

Transit Corridors

Bus bays are eligible for Road IFCIP credit if they are located within a Bernalillo County designated transit corridor. Transit corridors are routes along roads where population and employment density is projected as sufficient to support transit service; and, where transit service is forecast as critical to road congestion management. All transit corridors are designated as arterial or collector roads, and are therefore eligible for Road Impact Fees.

Within each transit corridor, bus stops will permit access to and egress from the transit system. Bus stops are spaced to serve the public within a five- to ten-minute walk. The developer interested in applying for credit for constructing a bus bay can consult with Bernalillo County and/or the Mid-Region Council of Governments to identify the transit corridors, walking distances from business and employment centers, and potential bus stops.

Transit Service

Once a potential bus stop is located, the estimated number of person trips attracted to use transit because of a new bus stop should be consistent with current transit service

in the region. Table 5 shows the population living within a five- and ten-minute walk of a bus stop in the Albuquerque Metropolitan Planning Area.

Table 5
Population and Employment within Walking Distance of a Bus Stop
or Train Station in Bernalillo County
2000 and 2010
Mid-Region Council of Governments (2012)

Walking Distance/Time	Population Within Walking Distance	% of Bernalillo County Population	Bernalillo County Population Total	Jobs Within Walking Distance	% of Bernalillo County Jobs	Bernalillo County Total
2000			556,678			344,911
0.25 mi./ 5 min.	300,744	54%		206,483	60%	
0.50 mi./ 10 min.	457,992	82%		296,280	86%	
2010			662,564			345,076
0.25 mi./ 5 min.	201,866	30%		136,696	40%	
0.50 mi./ 10 min.	432,488	65%		257,332	75%	

Note: the population and employment within walking distance was found from MRCOG's Transportation Accessibility Model with MRCOG's Data Analysis Subzones for population and employment.

The developer, in cooperation with Bernalillo County and MRCOG, will identify the population and employment within a five- and ten-minute walk of the proposed bus stop. The highest number of persons, population or employment, within a 10-minute walk of the bus stop is used to estimate the bus stop population base.

A primary interest in encouraging bus travel is to reduce use of passenger cars for Home-Based Work trips. The bus stop population base is multiplied by current transit system use in the unincorporated area, 0.012, for the initial estimate of Home-Based Work trips that may be generated by a new bus stop. If the developer considers that a higher number of person trips can be estimated based on other trips during the day, the basis for the estimation must be presented to and approved by the Impact Fee Administrator.

Transit-Oriented Development (TOD)

If a developer is proposing a Transit-Oriented Development (TOD), then the anticipated number of persons residing in the increased housing unit density is added to the bus stop population base. This increase in the number of potential personal transit trips is directly related to the proposed land use. The credit may be applied for and, if approved by the Impact Fee Administrator, used in this calculation although the TOD bus stop improvement is on or adjacent to the development. This creates an incentive for TOD in the unincorporated and growing area of Bernalillo County.

Bus Capacity

The projected travel impact of a specific bus bay is based on more than the bus stop population base. It is also the bus headways and number of passengers that can be accommodated at the bus bay. Bus service may not currently be available at a proposed bus stop, but the proposed bus bay and stop must be in a designated transit corridor. If so, bus service is a priority for future development.

In the service area, for the purpose of estimating person trips, the number of buses that are planned to stop at the proposed bus stop during the peak periods is multiplied by the number of persons the buses can carry. The result is the bus stop trip capacity.

No matter how large the population base, the number of persons served by a single stop cannot exceed the bus stop trip capacity. The bus stop population base is compared with the bus stop trip capacity. The smaller of the two numbers is the estimate of person trips from the proposed bus stop. This number is multiplied by the PM trip length. The result is the VMT_D the proposed bus stop will generate. This figure, if approved by the Impact Fee Administrator in consultation with Bernalillo County Public Works Division, is the Road Impact Fee credit for a transit improvement that may be applied to a new development. The VMT_D credit is subtracted from the new development VMT_D before calculation of the impact fee in Table 4.

Bicycle

Bicycles can be used for all trip purposes during the course of a day. Trips attractive for bicycle use are typically 5 miles or less. (*Adapting Suburban Communities for Bicycle and Pedestrian Travel*, FHWA) Bicycle use of bike lanes and bike paths varies in communities across the United States. Whether or not a person chooses to make a trip using a bicycle instead of a passenger car includes both their perception of the safety and ease of how bicycle facilities connect, form a network, and extend to their trip destination.

Credit for bicycle improvements is based on the number of persons who will use a bicycle lane or path. The factors a developer should consider in preparing a site specific assessment of the VMT_D generated by a bicycle improvement are: eligible bicycle improvements, bicycle service, and calculating the bicycle credit.

Eligible Bicycle Improvements

Bicycle lanes and trails eligible for Road IFCIP credit must relieve passenger car traffic on roads eligible for Road Impact Fees in the Service Area. The bicycle lanes and trails must also help connect the bicycle network to attract riders and improve the bicycle network. The bicycle projects that meet these criteria are compiled MRCOG Bikeway Projects list. The list is included in the Metropolitan Transportation Plan. There are currently 22 bicycle lane, trail and route projects in the unincorporated area of Bernalillo

County. (2035 Metropolitan Transportation Plan and Pedestrian and Bicycle Safety Action Plan, 2012).

Bicycle Service

The 2010 Census Transportation Planning Package (CTPP) identified that 1.4 percent of commuters in Albuquerque bicycled to their jobs. For the county as a whole, this share was 1.2 percent. Because the county share includes City of Albuquerque in its survey respondents, it is safe to assume that the share of unincorporated commuters who use a bicycle to get to work is lower than 1.2 percent. This establishes the rationale to provide better opportunities for commuters to bike to work throughout the unincorporated area of Bernalillo County.

Since bicycle trips are intended to offset both work and other trip purposes, it is important to identify the eligible improvements and how demand can be estimated. This encourages additional survey of travel patterns and interests in the service area.

Calculating the Bicycle Credit

Estimating the demand for a bicycle facility is based on one of eleven optional methods summarized by the Federal Highway Administration. (*Guidebook on Methods to Estimate Non-Motorized Travel*, 1999) One accepted method is to use the rate of bicycle use from related improvements. Accepted methods include mode split within a regional travel demand model, such as that maintained by MRCOG. Another accepted method is a market-based approach. This method is the basis for the Mid-Region Council of Governments Transportation Accessibility Model (TRAM) which incorporates travel characteristics from the regional travel demand model.

After identifying an eligible bicycle improvement within the service area, the developer may request from Bernalillo County and MRCOG an updated analysis of bicycle use resulting from the bicycle project in the Metropolitan Transportation Plan. New bicycle trips, and if available, trip lengths attributable to the improvement will be provided to the developer.

The new person trips are divided by 1.4 to adjust for passenger car vehicle occupancy, then multiplied by the bicycle trip length to estimate the VMT_D credit. If trip lengths are forecast and available from the Bernalillo County and MRCOG analysis, these lengths are used to calculate VMT_D . If bicycle trip lengths are either not forecast or are not considered appropriate for a specific project, the daily weighted average trip length is used. The weighted average trip length of 3.7 miles is within the 5-mile threshold for desirable bicycle trip length.

The developer may apply for Road IFCIP credit based on the VMT_D from the bicycle improvement they construct. If approved by the Impact Fee Administrator in consultation with Bernalillo County Public Works Division, the VMT_D generated by the

bicycle improvement may be subtracted from the new development VMT_D prior to calculation of the impact fee as shown in Table 4.

Pedestrian

The Federal Highway Administration encourages that pedestrian trips should be forecast separately from bicycle trips because:

- Pedestrian trips are generally shorter than bicycle trips. An analysis of pedestrian conditions may consider every block in a small area, while an analysis of bicycle conditions may focus on connection to the bicycle network.
- Many pedestrian trips are actually trips to access other modes, such as transit. Bicycle trips, in contrast, are primarily stand-alone trips although bicycle access to transit is an important type of non-motorized travel. (FHWA Guidebook on Methods to Estimate Non-Motorized Travel)

In addition to the FHWA observations, new development can encourage pedestrian trips on site and internal to the development. The new development can include improved pedestrian access with the development and to destinations outside of the development.

Credit for pedestrian improvements is based on the number of persons who will use a sidewalk, trail or related improvement. The factors a developer should consider in preparing a site specific assessment of the VMT_D generated by a pedestrian improvement are: eligible improvements; pedestrian service; mixed use development; and, calculating the improvement credit.

Eligible Pedestrian Improvements

Pedestrian road improvements such as sidewalks and trails must relieve passenger car traffic on roads eligible for Road Impact Fees in the Service Area. These improvements must help connect the pedestrian access to transit stops and destinations including work, shopping, and recreation. There are two types of pedestrian improvements eligible for Road Impact Fee credits: off-site and on-site.

In considering off-site pedestrian improvements for Road IFCIP credit, the developer should reference the projects listed in the *Pedestrian and Safety Action Plan (2012)*. The request for improvement must be approved by the Impact Fee Administrator in consultation with Bernalillo County Public Works Division to be eligible for Road IFCIP credit.

Pedestrian Service

The 2010 Census Transportation Planning Package (CTPP) stated that 1.7% of persons in Albuquerque, and 1.4% of persons in the unincorporated area walked in their Home-Based Work trip. Walking to work is a result of locating jobs near

households as well as having a safe and short walking distance which is dependent upon location. The MRCOG Travel Survey in 1993 identified that pedestrian trips account for 5% of all trips. (MRCOG Travel Survey, 1993)

Pedestrian trips can offset passenger car trips throughout a day if the destination of the trip is relatively short and there is continuous, safe pedestrian access. This is why the PCI, which addresses market opportunity and deterrents for all periods of a day is of such importance in estimating current service and the impact of an improvement.

Mixed Use Development

On-site development is calculated separately from the off-site improvements detailed above. On-site improvements similar to off-site improvements may be required to mitigate traffic operations or safety issues caused by the new development. There is an additional consideration for impact fee credit if the new development is mixed use, with both households, offices, industry or related job centers; and retail land uses. Mixed use development can enable walking trips for work, recreation and shopping.

A mixed-use development incorporating pedestrian sidewalks and paths that persons can use for specific trip types can reduce the number of daily passenger car trips. This benefit from mixed use development is termed internal capture of trips. (Trip Generation, 9th Edition) Internal capture of trips removes passenger cars trips from the roadway, and can be used as Road IFCIP credits.

Calculating the Improvement Credit

Improvement credits are calculated separately for off-site and on-site improvements. Off-site and on-site credits are described below.

Off-Site Credits

For off-site improvements, the Pedestrian Activity Index identifies current and potential access and use. This establishes the potential demand from the pedestrian facility. The Pedestrian Deterrent Index identifies pedestrian safety issues that may be addressed. These improvements may improve safety, and by reducing a deterrent increase use and generate Road IFCIP Service Units. The PCI anticipated increase in pedestrian activity from a pedestrian improvement is the demand. The demand for Home-Based Work Trips should be compared with the highest currently available information on the ratio of pedestrian trips (1.4%). If the proposed pedestrian trips are higher, then the basis for the difference should be described as part of the developer's application for Road IFCIP credit. If approved by the Impact Fee Administrator in consultation with the Bernalillo County Public Works Division, the VMT_D from the pedestrian improvement is subtracted from a new development VMT_D prior to calculating the per unit impact fee in Table 4.

On-Site Credits

On-site improvements are eligible for Road IFCIP credits if they are within a mixed use development. For mixed use development with a Bernalillo County approved internal circulation emphasizing non-motorized travel, an 8% reduction in the total trips generated by the new development may be applied. If the developer believes a higher percent reduction in trips is appropriate, the basis may be documented and submitted to the Impact Fee Administrator for review. The basis must address trips taken over all travel periods of a day.

Because of the shorter trip distances that result from effective pedestrian facilities in a mixed use development, the credit for pedestrian trip reduction is applied to new development trips rather than VMT_D . This provides the maximum incentive for pedestrian mobility internal to mixed use development.

Updating the IFCIP

The Road IFCIP is updated as part of the five-year cycle of Bernalillo County IFCIP updates. The most current data available will be used to revise the road impact fees. This includes use of the most current local data, such as the regional travel survey, and the most current version of national resources, such as the current edition of the ITE Trip Generation Manual.

The five-year cycle of updating the Road IFCIP is related to two other development cycles. The first is the two-year cycle of the Bernalillo CIP update. The Road IFCIP is developed as a subset of the CIP, identifying those projects that add capacity and that have been through public and professional review. The two-year CIP cycle concludes with the selection of projects for a General Obligation Bond ballot during the November election. The Road IFCIP update will utilize the most recently completed CIP.

The five-year cycle of updating the Road IFCIP is related to the cycle of updating the Metropolitan Transportation Plan by the Mid-Region Council of Governments. The MTP update includes the population by household forecast used in the Road IFCIP. The MTP is generally planned for completion and adoption by November each four years. Congress may permit regional governments to lengthen this process if the Transportation Reauthorization legislation is not passed and signed in a timely manner. With a formally adopted or provisional version of the MTP, the Road IFCIP population growth will be based on revised and the most current Mid-Region forecast.

References

- _____, Adams, John S.; Cidell, Julie L.; Hansen, Laua J.; Jung, Hyun-joo; Ryt, Yeon-tack; and VanDrasek, Barbara, *Development Impact Fees for Minnesota? Report 3: Transportation and Regional Growth Study*, Center for Transportation Studies, University of Minnesota, Minneapolis, Minnesota, 1999
- _____, *A Guide for Functional Highway Classification*, Federal Highway Administration, Washington, D.C. 1989, updated 2000
- _____, *Adapting Suburban Communities for Bicycle and Pedestrian Travel*, Federal Highway Administration, Washington, D.C.
- _____, *Albuquerque Area Model Update Project, Travel Survey Final Report*, Barton-Aschman Associates, Middle Rio Grande Council of Governments, February 1993
- _____, *Bernalillo County Code*, Chapter 46, Impact Fees
- _____, *Bernalillo County Street Standards*, Table 23.1, Bernalillo County, New Mexico, 1988
- _____, *Current Roadway Functional Classification System for the Albuquerque Metropolitan Planning Area*, Mid-Region Council of Governments, 2010
- _____, *Development Fee Act, New Mexico Statutes 1978 Annotated*, Chapter 5, Municipal and County Services, 1993 Replacement Pamphlet
- _____, *Dolan v. City of Tigard*, Supreme Court of the United States, Certiorari to the Supreme Court of Oregon, No. 93-518. Argued March 23, 1994 -- Decided June 24, 1994
- _____, *Guidebook on Methods to Estimate Non-Motorized Travel*, Federal Highway Administration, Washington, D.C., 1999
- _____, *Highway Capacity Manual 2010*, Transportation Research Board, National Academies of Science, Washington, D.C., 2000
- _____, *Unincorporated Bernalillo County 2020 Population Forecast*, Mid-Region Council of Governments, July 19, 2012
- _____, *Travel Demand Model Modifications, Technical Report for the Albuquerque Region, New Mexico*, Parsons Brinckerhoff, Middle Ro Grande Connections Study, August 2001
- _____, *Middle Rio Grande Regional Travel Model Recalibration and Validation Report*, Systra Mobility, 2010
- _____, *Trip Generation*, Institute of Transportation Engineers (ITE), 7th Edition, Washington, D.C., 2003
- _____, *Trip Generation*, Institute of Transportation Engineers (ITE), 8th Edition, Washington, D.C., 2008
- _____, *Trip Generation*, Institute of Transportation Engineers (ITE), 9th Edition, Washington, D.C., 2012
- _____, *2035 Metropolitan Transportation Plan for the Albuquerque Metropolitan Planning Area*, Mid-Region Council of Governments, 2011