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Planning Principles and Practices

17 June 2011

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Abstract

Planning refers to the process of deciding what to do and how to do it. This paper summarizes key principles and practices for effective planning, particularly land use and transportation planning. Effective planning takes into account diverse perspectives and impacts, allowing decision-makers to identify and implement the most effective ways to achieve goals.

A vision without a plan is just a dream. A plan without a vision is just drudgery. But a vision with a plan can change the world. — Proverb

Preface

Planning is a noble but underappreciated profession. Planners help communities create their preferred future – good planning makes progress toward paradise while bad planning leaves a legacy of problems and disputes. Planners perform civilization's heavy lifting by anticipating and resolving community conflicts. Good planning requires special skills and perspectives:

- Most people prefer to ignore problems until they become unavoidable. Planners are *professional worriers* who seek out potential problems so they can be mitigated.
- Most people look at a problem from a single perspective. Planners are responsible for considering *multiple perspectives*; they ask "what is best for everybody overall?"
- Most people prefer simple problems and solutions. Planners learn to *appreciate complexity*, and search for *deeper meanings* and *underlying causes*. Planners learn to work with uncertainty and ambiguity.
- Most people consider compromise a sign of weakness and failure. Planners are *passionate about compromise* because it resolves conflicts and often leads to better solutions.
- Most people prefer to consider one issue at a time. Planners apply *integrated analysis*, so individual, short-term decisions are consistent with multiple, long-term goals.

According to Harvard University Professor Daniel Gilbert (2006), the human species greatest and most unique ability is to imagine and anticipate objects and episodes that do not currently exist, that is, to *plan for the future*. That is our individual and collective strength. Planners are the coaches.

Traditional communities relied on shaman and priests to help maintain balance between the human and natural worlds. In modern communities these responsibilities are borne by planners.

Yet, planners often receive little respect. Our successes are taken for granted, and we are often blamed for failures beyond our control. As coordinators of public decision-making, planners are lightening rods to criticism. Our role as *unbiased facilitators* is often misinterpreted as *heartless bureaucrats*. Stakeholders frequently hold planners personally responsible when dissatisfied with outcomes. Planners need diplomatic skills and a thick skin: if we do our job well we are criticized approximately equally by all sides.

A family physician who emphasizes preventive health strategies (reducing tobacco consumption, eating balanced diets, regular exercise, etc.) often provides far greater total benefits with far less total costs than a surgeon who intervenes during a critical illness. Yet the family doctor is considered an annoying nag while the surgeon is considered a hero. Similarly, good planning tends to be undervalued because it prevents problems, so the people who benefit are unaware of their gains.

So go forth and toil noble planners! Take heart that your efforts, although underappreciated, are essential to your community's wellbeing and creation of earthly paradise.

Introduction

Planning refers to the process of deciding what to do and how to do it. Planning occurs at many levels, from day-to-day decisions made by individuals and families, to complex decisions made by businesses and governments. This paper focuses on community land use and transport planning, but most principles described apply to any planning activity.

Planners are professionals who facilitate decision-making. Planners do not make decisions themselves; rather, they support decision-makers (managers, public officials, citizens) by coordinating information and activities. Their role is to create a logical, systematic decision-making process that results in the best actions.

Although grounded in the mundane, planners help nurture a community's deepest aspirations, such as love, hope and beauty. Planners translate theoretical goals into specific actions. Planning is an art as well as a science. It requires judgment, sensitivity and creativity. Planning often deals with *in-between issues* and so requires perception of what artists call *negative space* (spaces between objects). For example, architects are concerned with building designs while planners are concerned with the spaces between buildings. Similarly, planners are responsible for integrating various transport system components (walkways, parking facilities, driveways, roads, terminals, ports, etc.). They create connections between different agencies, sectors and jurisdictions. As a result, planners must collaborate with diverse interest groups.

Planners facilitate change and so must overcome entrenched practices and interests. We often encounter resistance from people who assume that what they consider *normal* must be *good*, that is, people who look back to the past rather than forward to the future. For example, efforts to improve transport system efficiency by encouraging use of alternative modes often face resistance from people accustomed to automobile travel. "I *just* want to be able to drive where I want," they argue, implying that such a demand is reasonable, even if accommodating additional vehicle traffic is increasingly costly.

In their role as objective negotiators, planners are often in the middle of conflicts. They often have the most knowledge about a project and its likely impacts of a particular decision, and so are often responsible for anticipating unintended consequences and representing the interests of people who are underrepresented in the decision-making process, such as children, the poor and future generations.

Of course, planners are not infallible; we can make inaccurate predictions and bad recommendations, and a planning process can encounter unexpected problems. But planning failures stand out because they are unusual. Planners who follow professional practices generally do a pretty good job of identifying the best course of action.

Be warned: planning can be frustrating! There are many ways that a planning process can fail, including inadequate resources, inadequate public or official support, and unresolved conflicts. Planners often work for years on projects that are implemented ineffectively or not at all. However, if planning were easy, it wouldn't be as much fun!

Planning Principles

Good planning requires a methodical process that clearly defines the steps that lead to optimal solutions. This process should reflect the following principles:

- *Comprehensive* – all significant options and impacts are considered.
- *Efficient* – the process should not waste time or money.
- *Inclusive* – people affected by the plan have opportunities to be involved.
- *Informative* – results are understood by stakeholders (people affected by a decision).
- *Integrated* – individual, short-term decisions should support strategic, long-term goals.
- *Logical* – each step leads to the next.
- *Transparent* – everybody involved understands how the process operates.

A principle of good planning is that individual, short-term decisions should support strategic, long-term goals. This requires comprehensive evaluation and negotiation to help people accept solutions that may seem difficult and costly in the short-term.

Good planning is insightful, comprehensive and strategic. Planners should strive to truly understand problems, not just a single perspective or manifestation. Effective planning requires correctly defining problems and asking critical questions. A planning proecess should not be limited to the first solution proposed or the concerns of people who attend meetings. For example, downtown merchants might complain of inadequate customer parking near their stores. This problem can be defined in various ways – inadequate parking supply, too many vehicles, or inefficient management of available spaces – each implying different solutions. Here are questions to ask to help understand this problem:

- How much parking exists, including spaces currently unavailable to customers?
- Who currently uses the most convenient spaces?
- Who encounters this problem, when and where?
- How is parking currently managed (including regulations and prices)?
- What is the cost of increasing parking supply?
- What management strategies could help address this problem?
- Who bears the costs and benefits from potential solutions?
- How well do various solutions integrate with strategic planning objectives?

Planners should strive to understand factors that will affect the future. For example, rather than simply showing how traffic congestion has grown in recent years and extrapolating that trend into the future, a better analysis identifies specific factors that increased vehicle travel (population growth, rising incomes, declining real fuel prices, etc.), projects their future, and considers public policies that may change them. As a result, rather than simply saying, “Traffic is growing 4% annually,” an astute planner might say, “Vehicle traffic grew 4% annually during the last decade but this is likely to decline somewhat in the future due to aging population and higher future fuel prices, and could be avoided altogether if we implement certain mobility management strategies.”

Planners must manage information flows, including gathering, organizing and distribution (Litman, 2006). Planners should anticipate questions and provide accurate and understandable information, using visual information (maps, graphs, tables, etc.) and appropriate examples. Although a planning process is ideally linear (*scoping – data collection – analysis – draft plan – approval – final plan*), new questions and information often occur late in the process, requiring additional iterations and adjustments.

Planning requires preparing for a future that is often impossible to predict, and so must incorporate *uncertainty*. Forecasts should usually describe ranges and probabilities rather than point estimates, and plans should usually incorporate contingencies. Such contingency-based plans can include various actions, some to be implemented only if future conditions require. For example, a parking management plan might include some strategies that will be implemented immediately, some that will be implemented a few years in the future, and some that will be implemented only if warranted.

Planners should strive to be objective and fair. For example, a planning process to determine the rules that dog owners must follow in public parks should not be affected significantly by whether the planners involved love or hate dogs, since decisions should reflect the community's rather than planner's preferences. Planners should insure that the planning process includes perspectives and groups that might otherwise be ignored, such as people with lower incomes, disabilities, and future generations.

Planners sometimes face undeserved criticism due to confusion about their role. Critics imply that decisions reflect planners' personal preferences rather than those of the community. For example, in criticizing smart growth, Utt (2005), argues that planners "*impose their aesthetic sensibilities on the rest of us, the philistine masses. Instead of letting the planners have their way, communities should work to restore and strengthen individual property rights.*" Other critics claim that planners want to force people out of their cars, or change other behaviors ("TDM Criticism," VTPI, 2006).

But planners' role is to help a community determine its own preferences and develop appropriate responses, similar to physicians who advise patients on how to be healthier, and financial advisors who help investors manage their wealth. For example, planners might point out that smart growth development can help achieve a community's economic, social and environmental objectives; it is up to the community to decide whether these benefits justify specific smart growth policies.

In the example above, Utt (2005) argues that property owners should face fewer development restrictions, but the conflict is not really between property owners and planners, it is between property owners who want a particular type of development and others who would bear resulting costs. Planners are caught in the middle.

Planners must frequently shift between general concepts and specific applications. For example, a planner must be able to describe a general concept such as equity or safety, and apply these concepts when evaluating a specific policy or plan.

Planners work at the intersection of many disciplines and so need basic knowledge of many subjects including design, economics, law and management, making it an ideal field for people with diverse interests. Planners need many skills, including the ability to:

- Accurately, critically and objectively evaluate problems.
- Collect and analyze data.
- Apply general concepts to specific situations.
- Manage complex processes.
- Communicate complex issues with many types of people.
- Listen respectfully.

Planning is a social activity – it involves people. Successful planning requires effective involvement of stakeholders. Planners should be prepared to work with people from diverse backgrounds, interests and abilities.

Stakeholders

- Users
- Citizens/taxpayers
- Impacted residents
- Businesses
- Employees/workers
- Public officials
- Affected organizations/interest groups.
- Lawyers

Planners manage resources, such as people, time, money, land, and infrastructure. It is useful to carefully identify *resources*, *constraints* and *conflicts*. For example, land use planners may identify areas unsuited for certain types of development due to risks such as flooding, inadequate infrastructure, or their environmental and cultural values.

Planning tends to evolve over time, with new issues and tools. For example, in recent years social equity, environmental risk management, heritage preservation, energy planning, security, non-motorized transportation, public health, and sustainability have all become planning issues. Smart planners embrace these new issues and practices – becoming the local expert on a new planning issue can be a good career move!

Planning increasingly incorporates the concept of *sustainability*, which refers to comprehensive, strategic planning that explicitly considers long-term and indirect impacts, such as those in Table 1. Sustainability planning strives for *development* (increased quality) rather than *growth* (increased quantity), and recognizes resource constraints and ecological risks such as fossil fuel depletion and climate change.

Table 1 **Sustainability Issues** ("Sustainable Transportation," VTPI, 2006)

Economic	Social	Environmental
Affordability	Equity	Pollution prevention
Resource efficiency	Human health	Climate protection
Cost internalization	Education	Biodiversity
Employment and business activity	Community	Precautionary action
Productivity	Quality of life	Habitat preservation
Tax burden	Public Participation	Aesthetics

This table lists various sustainability issues.

Planning Concepts

This section describes basic planning concepts, terms and techniques.

Planning Framework

A *planning framework* defines the basic planning process structure. This typically includes the following components.

- *Principles* – A basic rule or concept used for decision-making.
- *Vision* – A general description of the desired result of the planning process.
- *Problem* – An undesirable condition to be *mitigated* (solved, reduced or compensated).
- *Goals* – A general desirable condition to be achieved, usually too general to be quantified, such as wealth, health, equity and freedom.
- *Objectives* – Specific, potentially quantifiable ways to achieve goals, such as increased income and economic activity, reduced crashes, and improved accessibility for non-drivers.
- *Targets* or *standards* – Quantitative levels of objectives to be achieved, such as a particular increase in income or reduction in crash rates. Standards are sometimes required by law or regulation, such as minimum parking requirements in zoning codes.
- *Performance indicators* – Practical ways to measure progress toward objectives, such as specific definitions of income, crash rates, and accessibility.
- *Plans* – A scheme or set of actions. This may be a *strategic* (general and broad) or an *action* (specific and narrow) plan.
- *Options* – Possible ways to achieve an objective or solutions to a problem.
- *Policies* or *strategies* – A course of action implemented by a jurisdiction or organization.
- *Programs* – A specific set of objectives, responsibilities and tasks within an organization.
- *Tasks* or *actions* – A specific thing to be accomplished.
- *Scope* – The range (area, people, time, activities, etc.) to be included in a process.
- *Evaluation criteria* – The impacts (costs and benefits) considered in an analysis.
- *Evaluation methodology* – The process of valuing and comparing options, such as cost effectiveness, benefit/cost, or lifecycle cost analysis.

Evaluation refers to the process of determining the value of a policy or program. Goals can be defined in terms of *problems* (what you don't want) or their opposite, *objectives* (what you do want). For example, if congestion is a problem then congestion reduction is an objective. The terms *problems* and *objectives* are more qualitative, while *costs* and *benefits* are more quantitative as illustrated below.

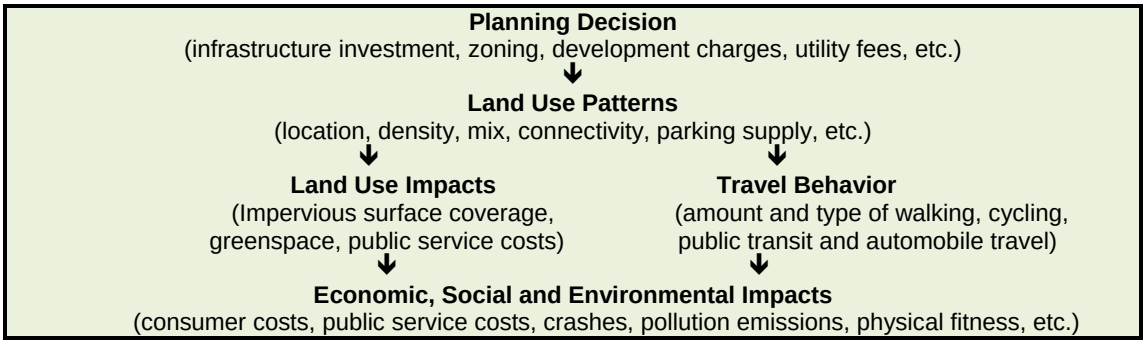
Table 2 **Ways to Describe An Impact**

	Negative	Positive
Qualitative	Problem	Objective/Solution
Quantitative	Cost	Benefit

Cost, Benefit, Problem and Objective are different ways to describe an impact.

Incremental (also called *marginal*) impacts are the changes a policy or project causes relative to a *baseline* (conditions that would otherwise exist, also called the *base case* or *reference case*). It is important to clearly define the baseline, taking into account trends that may affect future conditions such as population or economic growth. It is also important to clearly define the scope of impacts. For example, *parking cash out* (giving commuters who use alternative modes the cash equivalent of parking subsidies) generally reduces affected automobile trips about 20%. However, only about 20% of personal vehicle travel is for commuting, so if 30% of employees are offered cash out total impacts are 20% x 20% x 30%, or just 1.2% of total personal travel. The 20% reduction in affected trips seems large, the 1% reduction in total trips seems small. It is important that decision-makers understand how these different results are derived.

There may be several steps between a particular planning decision and its ultimate impacts, as summarized below. For example, a particular planning decision, such as an infrastructure investment or change in zoning codes, can have direct impacts on land use patterns (development density and mix), which has various impacts on land use and travel behavior (impervious surface coverage and greenspace preservation), which then have various ultimate economic, social and environmental impacts, such as changes in consumer and public service costs, crash risk, pollution emissions and physical fitness. Comprehensive evaluation must consider all of these effects and their ultimate impacts.



There may be several steps between a planning decision, its land use and travel behavior impacts, and its ultimate economic, social and environmental impacts.

Planning can occur at various levels, scales and jurisdictions. Some reflect functional geographic boundaries and others reflect political jurisdictions, as listed below.

Table 3 **Planning Scale**

Functional/Natural	Political
Site	Special service district
Street	Municipality/regional government
Neighborhood	State/provincial
Ecosystem/watershed	Federal
Regional	
Global	

This table lists various scales used for planning, from the smallest to the largest.

It is important to define the geographic scale and area for planning. For example, when referring to a particular city somebody could mean its Central Business District (CBD), urban neighborhoods, legal jurisdiction, or the city and its adjacent suburbs, which may be defined as a metropolitan planning area. Statistics, such as population, employment and travel data published by census or transportation agencies, may reflect any of these scales. A planning process should cover appropriate geographic units. If a particular decision may affect people outside a jurisdiction, it is generally best to include them in the planning process, although their concerns may be given less weight than those of residents within the jurisdiction.

The Concept of Accessibility

Accessibility (also called *access* or *convenience*) refers to the ability to reach desired goods, services, activities and destinations (together called *opportunities*). For example, a stepladder provides access to a high shelf, a store provides access to goods, and a library or telecommunications device provide access to information. Walking, cycling, ridesharing and public transit provide access to jobs, services and other activities. Access is the ultimate goal of most transportation, excepting the small portion of travel in which movement is an end in itself, (e.g., cruising, historic train rides, horseback riding, jogging). Even recreational travel usually has a destination, such as a resort or a campsite.

Four general factors affect physical accessibility:

1. *Mobility*, that is, physical movement. Mobility can be provided by walking, cycling, public transit, ridesharing, taxi, automobiles, trucks and other modes.
2. *Transportation System Connectivity*, which refers to the directness of links and the density of connections in path or road network.
3. *Mobility Substitutes*, such as telecommunications and delivery services. These can provide access to some types of goods and activities, particularly those involving information.
4. *Land Use*, that is, the geographic distribution of activities and destinations. When real estate experts say “location, location, location” they mean “accessibility, accessibility, accessibility.”

Conventional planning tends to evaluate transportation primarily in terms of mobility, particularly motor vehicle mobility, ignoring tradeoffs with other forms of accessibility. For example, conventional planning recognizes that highway expansion improves automobile accessibility, but generally ignores the negative impacts this tends to have on nonmotorized accessibility (wide roads with high traffic volumes and speeds are difficult for pedestrians and cyclists to cross). Since most transit trips involve walking links, highway widening can also reduce transit accessibility. Highway improvements also tend to stimulate sprawl, which reduces overall land use accessibility, increasing the amount of travel needed to reach destinations, further reducing accessibility by alternative modes.

These practices tend to create *automobile dependency*, that is, transportation and land use patterns that favor automobile travel over other modes (for this analysis, *automobile* includes cars, vans, light trucks, SUVs and motorcycles). The opposite of Automobile Dependency is not a total lack of private vehicles, rather, it is a *multi-modal* (also called *balanced* or diverse) transport system, meaning that consumers have various transportation options from which to choose (walking, cycling, ridesharing, public transit, telework, etc.), and incentives to use each for what it does best.

Multi-modal planning expands the scope of solutions that can be applied to transport problems. If planning only considers automobile access, virtually the only solution to congestion problems is to expand road, and virtually the only solution to transport inaffordability is to subsidize driving. A broader definition allows other solutions to be considered, such as improvements to alternative modes, improved connections between modes, mobility substitutes such as telecommuting, and policies that increase land use accessibility to also be considered transportation improvements.

How an activity is measured can affect planning decisions. For example, it is generally easier to measure *vehicle traffic* conditions (such as traffic speed, roadway Level of Service, and per-mile vehicle costs) than *mobility* (such as door-to-door travel speeds, or the sense of security experienced by pedestrians and transit users), or *accessibility* (people's ability to reach desired goods, services and activities, taking into account both their mobility and land use conditions). This tends to skew planning to focus more on automobile transportation than on other mobility and accessibility options (Litman, 2003). This is particularly important because many automobile travel improvement strategies degrade walking and transit conditions. Failing to account for these impacts can therefore lead to a self-fulfilling prophecy of improved driving conditions, reduced travel options and increased sprawl, as discussed later in this paper.

It is important to carefully specify goals and objectives. More broadly defined goals expand the range of possible solutions. For example, defining transportation goals in terms of accessibility rather than mobility allows land use changes and improved telecommunications to be considered as well as mobility improvements.

Plans should be as specific as possible. It is generally easier to identify the desired *direction* of change ("the community needs more affordable housing") then the optimal *magnitude* of change ("The community needs 1,000 additional housing units that accommodate low-income households"). Planners should ask themselves, how do we know when we've done enough, and how do we know when we've gone too far?

Travel Demand

Transportation Demand refers to the amount and type of travel people would choose under specific conditions, taking account factors such as the quality of transport options available and their prices. Understanding demand is important for transport planning. Transportation demand is a multi-faceted. Table 4 lists factors various that can affect travel demand. Changes in these factors, due to external influences or by design, can affect travel behavior, and therefore impacts such as congestion, accidents and pollution.

Table 4 **Factors That Affect Transport Demand**

Demographics	Economics	Prices	Transport Options	Service Quality	Land Use
Number of people (residents, employees and visitors). Incomes Age/lifecycle Lifestyles Preferences	Number of jobs Incomes Business activity Freight transport Tourist activity	Fuel prices and taxes Vehicle taxes & fees Road tolls Parking fees Vehicle insurance Public transport fares	Walking Cycling Public transit Ridesharing Automobile Taxi services Telework Delivery services	Relative speed and delay Reliability Comfort Safety and security Waiting conditions Parking conditions User information	Density Mix Walkability Connectivity Transit service proximity Roadway design

This table indicates various factors that affect demand, which should be considered in transport planning and modeling, and can be used to manage demand.

An important question in planning is the degree to which the transport system responds to consumer demands. For example, high automobile travel mode split may results from:

- *Automobile travel superior performance.* Consumers have viable options (they could walk, bicycle and use public transit) but prefer driving for most trips.
- *Automobile travel prestige.* Consumers have viable options but are often embarrassed to use them, and so choose driving for most trips.
- *Inadequate alternatives.* Distorted planning practices have reduced the quantity and quality of alternative modes, so walking, cycling and public transit are unavailable even when they are more cost effective than existing alternatives or consumers would willingly pay marginal costs.
- *Mis-pricing.* Since most vehicle costs are fixed or external, once consumers purchase an automobile they feel that they should use it, in order to get their money's worth. As a result, consumers drive more and use alternatives less than is optional overall. Described differently, consumers lack efficient pricing options, such as unbundled parking and distance-based insurance.

It is likely that all four factors contribute to high levels of automobile travel in some situations. To the degree that automobile travel offers true superior performance, an automobile-dependent transportation system responds to consumer demands. However, to the degree that other factors (prestige, inadequate alternatives, mis-pricing) contribute to high automobile travel mode split, the resulting travel patterns are not optimal; consumers are forced to drive more than they actually want and are unable to use preferred alternatives, due in part to inadequate options.

Economic Evaluation

Economic evaluation refers to various methods of measuring and comparing the value of a resource or activity (DfT 2006; Litman 2001). It often involves *monetizing* (measuring in monetary units) *impacts* (benefits and costs) and applying an accounting system such as *cost effectiveness* (the unit cost of achieving a given objective, such as dollars per additional passenger-trip) *benefit/cost analysis* (the ratio of total benefits to total costs) or *lifecycle cost analysis* (the sum of all benefits minus the sum of all costs over the project's total life, used to calculate *net present value*). This type of analysis is widely used, but may be biased in favor of impacts that are easier to measure (financial expenditures, travel time, crash damages) while undervaluing impacts that are more difficult to measure (human fitness and health, equity impacts, ecological effects).

Economic evaluation should indicate the distribution of costs and benefits, and the degree to which options tend to achieve or contradict equity objectives. There are several ways to evaluate equity. *Horizontal equity* assumes that everybody should be treated equally. *Vertical equity* assumes that physically, economically or socially disadvantaged people should be favored compared with relatively advantaged people. Below are specific ways for evaluating the equity of transport policies and programs.

- *Treats everybody equally.* A policy does not arbitrarily favor one group over others.
- *User-Pays Principle.* Individuals bear the costs they impose unless a subsidy is specifically justified.
- *Progressive with respect to income.* Lower-income households benefit relative to higher-income households.
- *Benefits transportation disadvantaged.* Benefits people with disabilities, non-drivers, people who cannot afford a car, etc.
- *Improves basic mobility.* Helps satisfy basic mobility (travel that society considers valuable).

In general, evaluation should consider all impacts, even those that are difficult to measure. If some impacts cannot be monetized, they should be described and quantified to the degree possible. Some evaluation methods, such as *Multiple Accounts Evaluation* (MAE), use rating and ranking systems to evaluate various options against various objectives, as illustrated in the table below. Rankings can be developed by technical experts, a public survey or an advisory committee. Many people consider this easier to understand and more transparent than analysis that monetizes all impacts.

Table 4 **Evaluation Matrix Example**

	Cost Effectiveness	Equity	Environ-mental	Public Acceptability
Option 1	High	High	Medium	High
Option 2	Medium	Very Harmful	High	Medium
Option 3	High	Medium	High	Low
Option 4	Low	High	Harmful	High

Each option is evaluated according to how well it helps achieve each objective.

Table 5 illustrates a more quantitative system. Each option is rated from 5 (best) to -5 (worst) for each objective. These ratings are then summed to create total points for each project.

Table 5 **Evaluation Matrix Example – With Point Ratings**

	Cost Effectiveness	Equity	Environ-mental	Public Acceptability	Total Points
Option 1	4	4	3	4	*15*
Option 2	3	-4	5	3	*7*
Option 3	5	3	4	1	*13*
Option 4	2	4	-3	5	*8*

Each option is evaluated according to how well it helps achieve each objective.

The objectives can be weighted, as shown in Table 6. The weight factors are multiplied times each rating, which are summed to give weighted total points. This approach begins to converge with standard Benefit-Cost analysis if points are considered to represent dollar values.

Table 6 **Evaluation Matrix Example – With Weighted Points**

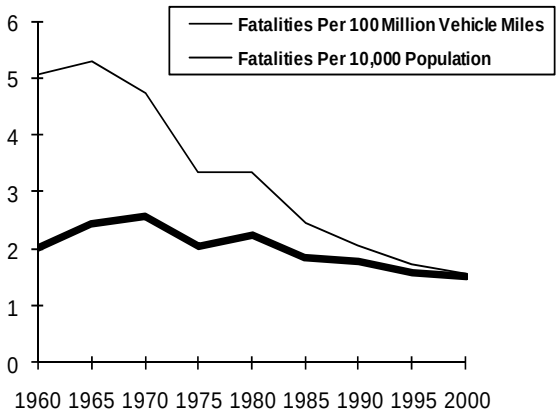
	Cost Effectiveness	Equity	Environ-mental	Public Acceptability	Total Points
Weight	*5*	*4*	*2*	*5*	
Option 1	4 (20)	4 (16)	3 (6)	4 (20)	*62*
Option 2	3 (15)	-4 (-16)	5 (10)	3 (15)	*24*
Option 3	5 (25)	3 (12)	4 (16)	1 (5)	*50*
Option 4	2 (10)	4 (16)	-3 (-6)	5 (25)	*40*

Each option is evaluated according to each objective, and each objective is assigned a weight. These are multiplied (values in parenthesis) and summed to obtain total points for each option.

Reference Units

Reference units are measurement units normalized to facilitate comparisons. Common reference units include per year, per capita, per mile, per trip, per vehicle and per dollar. Which reference units are used can affect how problems are defined and which solutions are selected (Litman, 2003). For example, measuring impacts such as crashes, emissions and costs per *vehicle-mile* ignores the effects of changes in vehicle mileage, but measuring these impacts *per capita* does not. Between 1960 and 2000 traffic fatalities per vehicle-mile declined significantly, but not per capita, due to increased vehicle travel (Figure 1). Measured per vehicle-mile, risk seems to be declining, indicating that current road safety programs are successful and should be continued. However when measured per capita the programs seem to have achieved little benefit.

Figure 1 **U.S. Traffic Fatalities** (BTS, 2000)



Traffic fatality rates declined significantly per vehicle-mile but not per capita.

Similarly, highway project costs are often compared per lane-mile. However that reference unit is inappropriate if, for example, one option is significantly shorter due to a costly bridge (a shorter-route-with-bridge option could have higher costs per lane-mile but may be more cost-effective overall), or when comparing highway projects with alternatives such as a transit improvement or a mobility management program.

Some reference units often used for transport program evaluation are described below.

- *Annualized Cost Per Capita* is useful for comparing projects and programs with other expenses, such as the cost of owning and operating an automobile.
- *Vehicle-mile* units reflect a *traffic* perspective that favors automobile travel and ignores impacts on travelers using other modes.
- *Passenger-mile* units reflect *mobility*, which values automobile and transit travel but not nonmotorized modes because they tend to be used for short trips.
- *Per-trip* units reflect *accessibility*, which gives equal value to automobile, transit, cycling, walking and telecommuting.

Uncertainty

Planners assist decision-makers make fair and rational choices despite uncertainty. We are forced to work with the best available information, knowing that it is seldom complete and the future conditions are impossible to predict. It is therefore important to follow these guidelines:

- Clearly acknowledge information limitations. Discuss what information is desired, the quantity and quality of information available, and ways that information constraints may bias decision-making. For example, a planner might say that projected development or transport demand is based on extrapolating past trends and may be inaccurate if population or economic growth patterns, or consumer preferences, change.
- Keep track of current research. Planners do not necessarily perform research themselves, but they should try to stay informed about new developments in their field. For example, there is currently considerable research concerning the relationships between land use patterns and travel activity, and therefore the impacts that smart growth policies have on how much and how people travel. A planner who works with these issues should try to track current research and good sources of information on these subjects.
- Implement contingency-based plans. Planners are often asked to perform the impossible: to predict the long-term future. I many situations it is appropriate to establish flexible plans which are adjusted over time as more information becomes available. For example, a contingency-based parking management plan could start by implementing one set of strategies, with a list of additional strategies that can be implemented if needed in the future.

Equity Analysis

Equity refers to the distribution of impacts (who receives benefits or bears costs) and the degree to which a specific policy or program achieves equity objectives. There are two basic principles of equity. *Horizontal equity* assumes that everybody should be treated equally, assuming that they have similar needs and abilities. *Vertical equity* assumes that disadvantaged people should be favored compared with more advantaged people. These principles often conflict: improving vertical equity by transferring resources to disadvantaged people requires violating the principle of horizontal equity, that everybody be treated equally. There is generally no single correct way to evaluate equity. It is usually best to consider various equity objectives and impacts, based on stakeholder values and interests.

Generic Planning Process

Below is a generic planning process suitable for most decision-making, from organizing a party to developing a comprehensive transportation network. This can be adjusted to reflect a particular situation's needs.

Generic Planning Process

1. Establish the basic planning framework, including scope, stakeholders, schedule, etc.
2. Invite stakeholder input to share ideas and concerns.
3. Create a vision, goal or problem statement.
4. Develop a list of possible *options* (also called *solutions*) using various information resources (brainstorming, publications, websites, experts, etc.).
5. Evaluate and prioritize options from best to worst.
6. Create a *Plan* which identifies who does what, when and how. This may include a long-term *strategic plan*, and short-term *action plans*. It may include contingency options that are only implemented if warranted by future conditions.
7. Gather baseline data (data collected before plan is implemented).
8. Implement policies and programs.
9. Evaluate program (gather data after program is implemented to determine whether it is achieving objectives as expected).
10. Revise plan as appropriate.

Often, this process must be adjusted to reflect specific conditions. For example, a particular planning process may have its scope, stakeholders, problem statement or goals already defined. In some situations, a proposed plan may require several cycles of development and adjustment due to changing conditions or as stakeholders gain a better understanding of the issues. Sometimes the planning process faces a barrier that requires revisiting basic assumptions (such as the scope, problem statement or goals), or adjusting the process. In such situations, planning requires flexibility, responsiveness, creativity and an ability to prioritize, in order to achieve progress.

Public Involvement

Public involvement is often an important component of planning. It allows plans to be considered from a variety of perspectives, which can help identify potential problems early in the process, and help gain support for a plan's implementation (Schively, et al. 2008; PPS 2008). A community planning process is sometimes called a *charrette*.

Public Involvement Techniques

- Advisory committee
- Audio-visual presentation
- Discussion paper
- News release, brochure and mail-out
- Open house (public information drop-in)
- Public meeting
- Site tour
- Small group meeting
- Survey and questionnaire
- Public workshop

Public Involvement Resources

Choosing Visualization (www.choosingviz.org) Transportation Knowledge Sharing Web Portal provides guidance for selecting public participation visualization tools

Committee on Public Involvement, Transportation Research Board (www.trbpi.com).

FHWA (1996), *Public Involvement Techniques for Transportation Decisionmaking*, Federal Highway Administration, (www.fhwa.dot.gov/reports/pittd/cover.htm).

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Land Use And Transportation Planning Issues

The earth's surface, called the *landscape*, is a unique and valuable resource. *Land Use* (also called *Land Development* and *Spatial Development*) refers to how the landscape is treated, including the location and design of buildings, transportation facilities, parks and farms. Major land use categories are listed below.

Built Environment

- Residential (single- and multi-family housing)
- Commercial (stores and offices)
- Institutional (schools, public offices, etc.)
- Industrial
- Transportation facilities (roads, parking, sidewalks, etc.)
- Plazas/urban parks
- Brownfields (old, unused and underused facilities)

Greenspace

- Parkland
- Agricultural
- Forests and other undeveloped lands
- Shorelines

Land use patterns can be evaluated based on the following attributes:

- *Density* - number of people, jobs or housing units in an area.
- *Mix* - whether different land use types (commercial, residential, etc.) are located together.
- *Clustering* - whether related destinations are located together (e.g., commercial centers, urban villages, residential clusters, etc.).
- *Connectivity* – number of connections within street and path systems.
- *Impervious surface* – land covered by buildings and pavement, also called *footprint*.
- *Greenspace* – portion of land devoted to gardens, parks, farms, woodlands, etc.
- *Accessibility* – ability to reach desired activities and destinations.
- *Nonmotorized accessibility* – quality of walking and cycling conditions.

Land use attributes can be evaluated at various scales:

- *Site* – an individual parcel, building, facility or campus.
- *Street* – the buildings and facilities along a particular street or stretch of roadway.
- *Neighborhood or center* – a walkable area, typically less than one square mile.
- *Local* – a small geographic area, often consisting of several neighborhoods.
- *Municipal* – a town or city jurisdiction.
- *Region* – a geographic area where residents share services and employment options. A metropolitan region typically consists of one or more cities and various suburbs, smaller commercial centers, and surrounding semi-rural areas.

Geographic areas are often categories in the following ways:

- *Urban* – relatively high density (5+ housing units per gross acre), mixed land use, with multi-modal transport (typically includes walking, cycling, public transit, automobile and taxi service).
- *Suburban* – medium density (2-10 residents, 1-5 housing units per acre), segregated land uses, and an automobile-dependent transportation system.
- *Town* – Smaller urban centers (generally less than 20,000 residents).
- *Village* – Small urban center (generally less than 1,000 residents).
- *Exurban* – low density (less than 1 house per acre), mostly farms and undeveloped lands, located near enough to a city for residents to commute and use services there.
- *Rural* – low density (less than 1 house per acre), mostly farms and undeveloped lands, with a relatively independent identify and economy.
- *Greenspace* (also called *Openspace*) – biologically active lands such as gardens, parks, farms, woodlands, etc.

Sprawl refers to dispersed, low-density, automobile-dependent land use, in contrast to *Smart Growth*, which refers to more compact, mixed, multi-modal land use land use. Table 6 compares these two development patterns.

Table 6 **Comparing Sprawl and Smart Growth** ("Smart Growth," VTPI, 2006)

Attribute	Sprawl	Smart Growth
Density	Lower-density	Higher-density.
Growth pattern	Urban periphery (greenfield) development.	Infill (brownfield) development.
Land use mix	Homogeneous land uses.	Mixed land use.
Scale	Large scale. Larger buildings, blocks and wide roads. Little detail since people experience the landscape at a distance, as motorists.	Human scale. Smaller buildings, blocks and roads. More design details for pedestrians.
Transportation	Automobile-oriented transportation, poorly suited for walking, cycling and transit.	Multi-modal transportation that support walking, cycling and public transit use.
Street design	Streets designed to maximize motor vehicle traffic volume and speed.	Streets designed to accommodate a variety of activities. Traffic calming.
Planning process	Unplanned, with little coordination between jurisdictions and stakeholders.	Planned and coordinated between jurisdictions and stakeholders.
Public space	Emphasis on the private realm (yards, shopping malls, gated communities, private clubs).	Emphasis on the public realm (sidewalks, parks, public buildings, transit service).

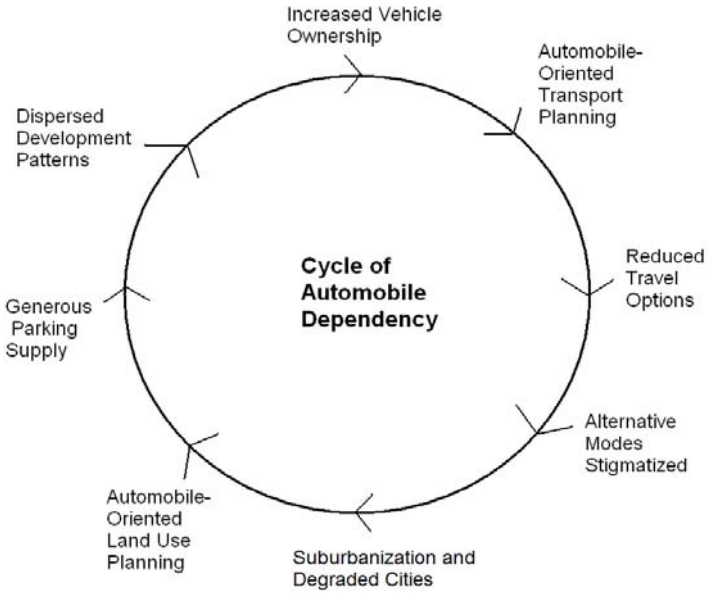
This table compares Sprawl and Smart Growth land use patterns.

Transportation and land use decisions affect each other. More sprawled, automobile-dependent land use patterns increase per capita vehicle travel. Smart growth land use patterns are more accessible and multi-modal, and so tend to reduce vehicle travel. Policies that encourage sprawl and smart growth are contrasted below.

Encourages Sprawl	**Encourages Smart Growth**
• Maximum roadway capacity and speed.	• Transit service improvements.
• Generous parking supply.	• More affordable public transit fares.
• Low road user charges and fuel taxes.	• Pedestrian and cycling improvements.
• Poor walking and cycling conditions.	• Reduced parking supply with parking management.
• Inferior public transit service.	• Road and parking pricing.
• High public transit fares.	• Traffic calming and traffic speed reductions.

Sprawl and automobile dependency are complementary. During much of the last century there was a self-reinforcing cycle of increased vehicle ownership and use, reduced travel options, and more automobile-oriented land use development, as summarized in Figure 2.

Figure 2 **Cycle of Automobile Dependency** (Litman, 2004)



Many common planning practices contributed to a cycle of automobile dependency and sprawl. These tend to reduce the supply of affordable housing in compact, mixed, walkable and transit oriented communities.

Mobility management (also called *Transportation Demand Management* or *TDM*) consists of various strategies that change travel behavior in order to increase transport system efficiency and reduce specific problems such as traffic and parking congestion, accidents and pollution emissions. Mobility management strategies tend to improve transportation options (better walking, cycling, ridesharing, public transit, telework, delivery services), provide incentives to use the most efficient option for each trip (with more efficient road, parking, fuel and insurance pricing; priority measures for more efficient modes, and improved user information) and smart growth land use policies.

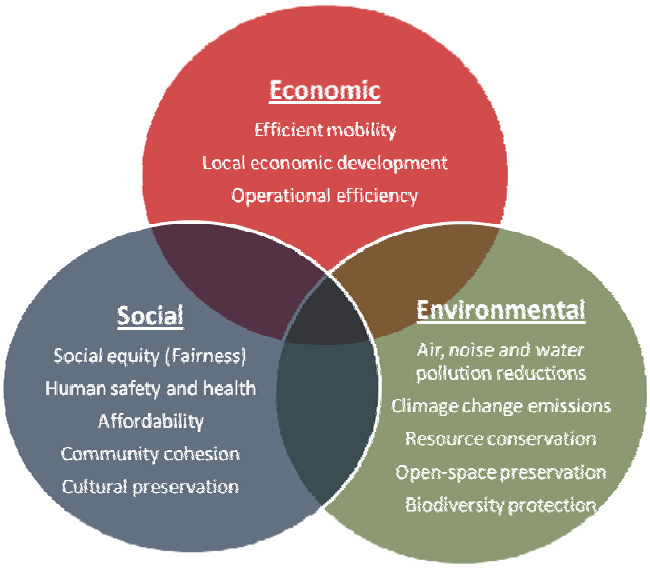
Smart Growth Practices (USEPA 2006; SGN 2006)

- *Strategic planning.* Establish a comprehensive community vision which individual transport and land use policies and planning decisions should support.
- *Encourage compact development.* Encourage higher development densities, particularly within existing urban areas or near activity centers, such as downtowns, commercial centers and transit stations.
- *Create more self-contained communities.* Locate various compatible land uses close together so people can reach commonly-used services by walking or short vehicle trips. For example, develop schools, shops and recreation facilities in or adjacent to residential areas. Mix land uses at the finest grain feasible.
- *Encourage a mix of housing types and prices.* Develop affordable housing near employment, commercial and transport centers. Support second suites, apartments over shops, lofts, location-efficient mortgages and other affordable housing innovations.
- *Foster distinctive, attractive communities with a strong sense of place.* Encourage physical environments that create a sense of civic pride and community cohesion, including attractive public spaces, high-quality architectural and natural elements that reflect unique features of the community, preservation of special cultural and environmental resources, and high standards of maintenance and repair.
- *Maximize Transport Options*. Support transportation diversity, including walking, cycling, ridesharing, public transit, Delivery Services and Telework.
- *Improve nonmotorized travel conditions*. Encourage walking and cycling by improving sidewalks, paths and crosswalks, by calming traffic, and by providing street amenities (trees, awnings, benches, pedestrian-oriented lighting, etc.).
- *Encourage Transit oriented development*. Increase development density within walking distance (0.25 to 0.50 miles) of high capacity transit stations and corridors, and provide high quality pedestrian and cycling facilities in those areas.
- *Maximize connectivity.* Create a network of well-connected streets and paths, with short blocks and minimal cul-de-sacs. Keep streets as narrow as possible, particularly in residential areas and commercial centers. Use traffic management and traffic calming to control vehicle impacts rather than dead ends and cul de sacs.
- *Accessible site design.* Encourage buildings that are oriented toward city streets, rather than set back behind large parking lots.
- *Implement mobility management programs*. Use mobility management to reduce total vehicle traffic and encourage the use of efficient modes.
- *Manage parking for efficiency.* Encourage parking management strategies such as sharing, regulating and pricing parking facilities.
- *Improve street design to create complete streets*. Design streets to efficiently accommodate all modes and activities such as strolling, playing, shopping, and special events.
- *Reform tax and utility rates.* Structure property taxes, development fees and utility rates to reflect the lower public service costs of compact infill development.
- *Preserve greenspace.* Preserve open space, particularly areas with high ecological and recreational value. Channel development into areas that are already disturbed.

Sustainability Planning

Sustainability emphasizes the integrated nature of human activities and therefore the need to balance economic, social and environmental objectives. Interest in sustainability can be considered a reaction to overly specialized decision-making focused on easily measured goals and impacts, while ignoring those that are indirect or more difficult to measure. Sustainability planning requires comprehensive analysis that accounts for all significant impacts, including those distant in space and time. It strives for *development* (increased quality) rather than *growth* (increased quantity), and recognizes resource constraints and ecological risks such as fossil fuel depletion, habitat loss and climate change. Conventional planning asks, "Does it work?" Sustainability planning tends to ask "Does it fit?" That is, whether individual decisions fit into overall long-term goals.

Figure 3 **Sustainability Issues**



This figure illustrates various sustainability issues.

Sustainability is sometimes defined narrowly, focusing on a few specific resource and ecological risks, such as fossil fuel depletion and climate change, but increasingly it is defined more broadly to include a variety of economic, social and environmental issues.

Table 1 **Sustainability Issues**

Economic	Social	Environmental
Cost efficiency	Equity	Pollution prevention
Employment and business activity	Human health	Climate protection
Productivity	Education	Biodiversity
Resource efficiency	Community	Precautionary action
Affordability	Quality of life	Habitat preservation
Government efficiency	Public Participation	Aesthetics

This table lists various sustainability issues.

Best Practices

The following help achieve effective planning (Lockwood 2004).

- Planning should be integrated, so individual, short-term decisions are consistent with broader, strategic goals.
- Analysis should be comprehensive, reflecting all significant perspectives, impacts and objectives. A broad range of options and impacts should be considered.
- Planners should be objective, fair and respectful.
- Insure adequate public involvement. Stakeholders should be kept informed and have opportunities for involvement.
- Clearly define the goals (what you ultimately want), and regularly revisit the question, "what exactly are we trying to accomplish?"
- The planning process should be understood by all stakeholders, with clearly defined vision or problem statement, goals, objectives, evaluation criteria and performance indicators.
- Consider a wide range of possible solutions including some that may initially seem unrealistic but could be appropriate as part of an integrated program. Support innovation: recognizing that some new strategies fail, but even unsuccessful experiments provide useful information.
- Identify resources, constraints, and conflicts. Draw attention to potential problems.
- Make sure results are comprehendible to the intended audience, using suitable language and visual information (graphs, maps, images, etc.). Highlight differences between options.
- Identify and avoid token solutions which fail to really address a problem. Modest actions may be appropriate if it is the beginning but not the end of more substantial solutions.
- Be prepared for setbacks. A planning process sometimes initially fails, but succeed if repeated due to changing circumstances, more stakeholder understanding and commitment.
- Changes should be implemented as predictably and gradually as possible.
- When appropriate use contingency-based planning, which identifies a wide range of potential solutions and implements the most cost-effective strategies justified at each point in time, with additional strategies available for quick deployment if needed in the future.

Contingency-Based Planning
Contingency-Based Planning deals with uncertainly by identifying specific responses to possible future conditions. A contingency-based plan consists of various *if-then* statements that define the solutions to be deployed as needed: *if* a particular problem occurs *then* we will implement a set of solutions, and *if* those prove to be insufficient *then* we will implement an additional set. For example, a contingency-based parking plan might initially allow developers to build fewer parking spaces than normally required provided that they identify the solutions that will be implemented if that proves inadequate.

Contingency-based planning recognizes that the future is impossible to predict and conditions may change, and so it is often best to apply flexible and responsive solutions. Because such solutions are only implemented if actually needed and can be adjusted to reflect future conditions, this is usually most efficient. Contingency-based planning is particularly important when trying innovative solutions, and when future conditions are uncertain or variable, such as during periods of rapid growth and economic change, or to deal with special events and disasters.

Examples and Case Studies

Below are examples of various planning processes.

The Chattanooga Story (www.chattanooga.gov)

Over the last 20 year, Chattanooga, Tennessee has redeveloped its once-depressed downtown to become a major commercial and tourist center that attracts millions of visitors a year, due to three decades of community planning that emphasizes citizen involvement, local environmental quality and strategic investments.

Concerned about the impacts that pollution was causing on local economy, the Chattanooga Chamber of Commerce created an Air Pollution Control Board in 1967. The board included a diversity group of business leaders and citizens. It established a 1972 deadline for all existing major sources of pollution to be in compliance with emission standards, which was met at a cost of $40 million. National and international attention focused on a city that in three years had changed from the most polluted city in the United States to one of the cleanest. This inspired a new community challenge, revitalizing a dying city.

In the early 80's, city officials established a goal that Chattanooga should become a leader in developing solutions to urban problems. In 1982, City and County governments appointed a task force to study and define the best way to develop the 22-mile Tennessee River corridor around Chattanooga. Through this process thousands of citizens attended hundreds of meetings to focus on the riverfront. The Task Force drafted the Tennessee Riverfront Master Plan which covered 20 years and involved $750 million in commercial, residential and recreational development.

This led to creation of the RiverCity Corporation, a private, nonprofit organization with a mandate to implement the Riverfront Master Plan and 40 community development goals. Among other achievements, it developed the Tennessee Aquarium, the world's largest freshwater aquarium, which opened in 1992. The structure has become a trademark for the city that in 10 years transformed itself from a dying city to one of growth and sustainable development. The Chattanooga Area Regional Transportation Authority also established an Electric Shuttle in 1992. With free five minute service between the Tennessee Aquarium and downtown destinations the Shuttle provides a transportation link identified as one of the top goals during Vision 2000. As a result of these efforts, Chattanooga is now one of America's most livable cities.

Seattle Climate Action Plan (www.ci.seattle.wa.us/climate/report.htm)

In 2005 Seattle Mayor Greg Nickels established a Green Ribbon Commission that included a wide variety of stakeholders and experts to recommend climate protection actions for the Seattle community to meet or beat the Kyoto target. In 2006 the Commission released a report which includes the following strategies to reduce automobile use (plus other strategies to reduce emissions in other ways):

- Increase the supply of frequent, reliable and convenient public transportation.
- Significantly expand bicycling and pedestrian infrastructure.
- Lead a regional partnership to develop and implement a road pricing system.
- Implement a new commercial parking tax.
- Expand efforts to create compact, green, urban neighborhoods.

Portland's Success Curbing Sprawl (www.trans.ci.portland.or.us)

Elaine Wilkerson, Director, Portland Metro Growth Management Services Department

The Portland metropolitan area is thriving with 1.3 million people in a compact region, about 35 miles across at its widest point. The region grew by more than 24% over the last 20 years but only by 13% in land area. Portland downtown employment has nearly doubled from 63,000 (1970) to 108,000 (1995), while the average residential lot size declined by 50%. This is due to land-use initiatives that encourage a compact community. The region has adopted a 2040 Growth Concept that promotes minimal expansion of the existing Urban Growth Boundary (UGB), increased densities in centres and along transit corridors, multi-modal accessibility, and protection of neighborhoods, parks and green spaces. There are five historical events that help frame the discussion about the Portland region's experience in curbing sprawl:

- In 1983, the State of Oregon enacted legislation requiring universal land use planning and UGBs, as well as state goals such as public involvement, creating compact communities using UGBs, and preserving farmland, forest land and water resources
- Also in 1983, the City of Portland first adopted its Downtown Plan. This provided for pedestrian and transit amenities, open spaces, public art, housing and active streets. The plan was instrumental in ensuring that the downtown remained vibrant and continued to redevelop and intensify with both jobs and housing
- Metro adopted the first regional UGB in 1988. Since then, community leaders continue to promote the downtown and multi-modal access to the downtown (including parking caps, a bus mall and light rail).
- The state also adopted a Transportation Planning Rule to increase accessibility, require pedestrian and bike facilities, and require reductions in vehicle miles traveled and parking spaces per capita
- In 1992 the Metro region approved a Metro charter with a primary priority being the coordination of transportation and land use planning for the region. A key responsibility for Metro is the administration of the UGB.

Integrated Planning (EC, 2002)

Leading experts recommend the following general principles to create more integrated and efficient local decision-making in the European Union:

1. Establish and enforce strategic (integrated with a long term perspective) visions, planning ability, capacity to use a wider and more innovative range of tools.

2. Promote management skills to develop participatory and proactive processes, involving all relevant stakeholders, and to implement local strategic planning, influencing and promoting the adoption of self – regulated behavior from all the partners.

3. Consider and reflect upon national/local specificity and differences, being aware of new urban dynamics and of recent and relevant trends (such as increasing liberalisation of the environmental markets, globalisation of pressures, the need for urban renewal, etc.).

Nonmotorized Facility Management *(Litman and Blair, 2004)*

Conflicts often develop over the use of nonmotorized facilities (sidewalks and multi-use paths), such as between pedestrians and cyclists and between fast and slow cyclists. There are two general ways to address such conflicts:

- Separate modes and restrict uses. For example, prohibit use of skates, scooters and bicycles on sidewalks.
- Manage facilities for shared use with user guidelines concerning maximum speed and which mode must yield to each other, and if necessary, by enforcing regulations.

In practice, most nonmotorized facilities have some shared use. It is infeasible to create separate facilities for each mode everywhere, and conflicts can develop among modes that are grouped together, for example, between walkers, wheelchair users and runners. Rather than focusing on modes it is usually more productive to manage facilities based on priority, performance and behavior. A 12 mile-per-hour (mph) runner does not belong on a crowded sidewalk any more than a cyclist at that speed, while a skater or cyclist going 6 mph is better off using a sidewalk, if it is not too crowded, than a roadway with heavy traffic. Here are examples of guidelines and regulations for managing nonmotorized facilities based on each mode's performance and value:

- Higher-priority modes should have priority over lower-priority modes. For example, recreational modes (such as skateboards) should yield to modes that provide basic mobility (such as walking and wheelchair users) if conflicts exist.
- Lower-speed, smaller modes should be given priority over higher-speed, larger modes. For example, bicycles should yield to scooters, and scooters should yield to walkers.
- Maximum speeds should be established for each mode, based on the physical design of the facility (i.e., some facilities may only accommodate 10 mph cycling, while others can accommodate 15 mph cycling). Maximum allowable speeds should decline as a pedestrian facility becomes more crowded or narrower.
- If facilities cannot accommodate all potential modes, higher-priority modes should be allowed and lower-priority modes should be required to use roadways. For example, cycling, skating and equestrians may be allowed on uncrowded pedestrian facilities, but not at busy times and locations.
- Special efforts should be made to accommodate a wide range of users (including cyclists, skaters and runners) where there are no suitable alternative routes (e.g., if adjacent roadways are unsuitable for such modes).
- At least some public trails should be designed to accommodate people with physical disabilities, including people in wheelchairs, with washrooms and drinking fountains that meet accessibility standards.
- Cyclists, skaters and motorized modes should limit their speed when using mixed use paths (6-12 mph, depending on conditions) and yield to non-motorized users.
- Determine when and where pets are allowed. Clearly define their regulations.

Integrated Approach to Planning (www.transit.govt.nz/planning/iap.jsp)

Integrated Approach to Planning (IAP) is a is a collaborative endeavour between New Zealand transport sector agencies and Ministry for Environment to identify gaps and barriers to achieving better integration, both within and between transport and land-use planning, to help improve transport system sustainability. They project includes various studies that evaluate current planning practices and recommend improvements for more integrated planning. It used several case studies of actual transport and land use planning situations selected to represent various modes and problems, including strategic planning, regional growth, urban redevelopment, and freight transport improvements.

Urban Renewal – Good Example of Bad Planning (von Hoffman 2000)

Urban renewal typically involved replacing city "slums" with public housing. Such programs reflect the following assumptions:

- The best way to help the poor is to give them more modern homes (as opposed, for example, to improving their existing houses or increasing employment opportunities).
- There is no significant value to the existing homes or community networks that exist in lower-income neighborhoods.
- There is no harm to concentrating poor people geographically.
- Older buildings are bad and new buildings are good.

The planning process was generally top-down, with little public involvement or flexibility. Local officials had a strong incentive to implement urban renewal programs to obtain federal dollars and the resulting local economic activity. Planners have since learned that such programs reflect a miss-definition of the problem. It assumes that poverty consists of its physical manifestation (slums) rather than more fundamental problems such as inadequate education and employment opportunities, that even poor communities provide important social supports, and that concentrating poverty tends to exacerbate problems. These efforts have generally been abandoned in developed countries and many of the worst public housing projects were closed and redeveloped.

Rediscovering our roots can solve 21st Century traffic woes (Toth 2007)

Engineer Gary Toth, now head of the organization Project for Public Spaces, offers the following suggestions for making transportation planning more responsive to future demands:

1. Target the "right" capital improvement projects first: The first step is to recognize that transportation decisions make a huge impact on land use and community planningand vice versa. Major investments in roads should be pursued only in communities and regions with effective land use plans in place, which will protect the public investment in new highway capacity. With funds for expanding our road system now at a premium, we can no longer afford to invest in areas whose inadequate land use practices will mean the new roads are soon overburdened. Taxpayers deserve to know that their money will be spent in ways that solve our transportation problems-not in creating new problems. The transportation profession itself needs to accept that road projects carry significant social and environmental consequences. Transportation professionals need to

heed Thomas MacDonald's and Herbert Fairbank's advice from the 1930s: "Freeway location should be coordinated with housing and city planning authorities; railroad, bus, and truck interests; air transportation and airport officials; and any other agencies, groups, and interests that may affect the future shape of the city." (Quote from THE GENIE IN THE BOTTLE: The Interstate System and Urban Problems, 1939-1957 by Richard F. Weingroff)

2. Make Placemaking and far-sighted land-use planning central to transportation decisions: Traffic planners and public officials need to foster land use planning at the community level, which supports instead of overloads a state's transportation network. This includes creating more attractive places that people will want to visit in both existing developments and new ones. A strong sense of place benefits the overall transportation system. Great Places - popular spots with a good mix of people and activities, which can be comfortably reached by foot, bike and perhaps transit as well as cars - put little strain on the transportation system. Poor land-use planning, by contrast, generates thousands of unnecessary vehicle-trips, creating dysfunctional roads, which further worsens the quality of the places. Transportation professionals can no longer pretend that land use is not our business. Road projects that were not integrated into land use planning have created too many negative impacts to ignore.

3. Re-envision single-use zoning: We also must shift planning regulations that treat schools, grocery stores, affordable housing and shops as undesirable neighbors. The misguided logic of current zoning codes calls for locating these amenities as far away from residential areas as possible. Locating these essential services along busy state and local highways creates needless traffic and gangs local traffic atop of commuting and regional traffic, thus choking the capacity of the road system.

4. Get more mileage out of our roads: The 19th and early 20th Century practice of creating connected road networks, still found in many beloved older neighborhoods, can help us beat 21st century congestion. Mile for mile, a finely-woven dense grid of connected streets has much more carrying capacity than a sparse, curvilinear tangle of unconnected cul-de-sacs, which forces all traffic out to the major highways. Unconnected street networks, endemic to post-World War II suburbs, do almost nothing to promote mobility.

5. View streets as places: Streets take up as much as a third of a community's land. Yet, under planning policies of the past 70 years, people have given up their rights to this public property. While streets were once a place where we stopped for conversation and children played, they are now the exclusive domain of cars. Even the sidewalks along highways and high-speed local streets feel inhospitable.But there is a new movement to look at streets in the broader context of communities (see the Federal Highway Administration's website on Context-Sensitive Solutions.) It's really a rather simple ideastreets need to be designed in a way that induces traffic speeds appropriate for that particular context. Freeways should remain high-speed roads but on other roads and streets we need to take into account that these are places for people as well as conduits for cars.

6. Think outside the lane: Last but not least, the huge costs of eliminating traffic jams at hundreds of locations throughout a state will allow for only a few congestion hot spots to be fixed by big engineering projects each year. That means that most communities must wait decades or even a century for a solution to their problems unless we adopt a new approach that incorporates land use planning, community planning and alternative modes of transportation to address ever increasing volumes of traffic.

Urban Highway – Good Example of Bad Planning *(Weingroff 2000)*

The U.S. federal government's interstate program, established in 1956, provided generous funding to state governments to build a network of high speed highways. It gave state and local officials a strong incentive to build such highways in order to receive federal dollars and resulting local economic benefits. Although expressways are appropriate for intercity (between cities) transport, they are less appropriate in urban areas due to high construction costs, concentrated travel demand and significant external costs. During its first four decades there was little consideration of alternatives, funding was not transferable to other modes, and many states only allow fuel tax revenues to be used for roadway projects. In the mid-1990s, more flexible policies were established but much durable damage has been done, including destroyed urban neighborhoods, degraded city centers, reduced transit service, increased urban sprawl, and increased costs to consumers, governments and the environment.

References And Resources For More Information

American Planning Association (www.planning.org) has extensive planning resources.

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Dan Burden (2002), *My Toughest Challenge*; at www.vtpi.org/burden.pdf.

Canadian Institute of Planners (www.cip-icu.ca) provides Canadian planning resources.

The Center for Livable Communities, which is part of the *Local Government Commission* (www.lgc.org/center), provides practical tools for innovative land use and transport planning.

CH2M Hill and HDR (2010), *History and Application of Least Cost Planning for Transportation from the Mid-1990s*, Oregon Department of Transportation (www.oregon.gov); at www.oregon.gov/ODOT/TD/TP/LCP.shtml.

Susan Chapman and Doug Weir (2008), *Accessibility Planning Methods*, Research Report 363, New Zealand Transportation Agency (www.landtransport.govt.nz/research/reports/363.pdf).

Choosing Visualization (www.choosingviz.org) Transportation Knowledge Sharing Web Portal provides guidance for selecting public participation visualization tools

Citizen Planner Institute (www.citizenplanner.com) trains average citizens, public officials, business people, and kids in the basics of neighborhood and town design.

Community Impact Assessment Website (www.ciatrans.net) provides information for considering impacts on human environments in transportation planning.

CTI Centre for the Built Environment (http://ctiweb.cf.ac.uk/cticbe/planning/planning.html).

Cyburbia (www.cyburbia.org) provides information on current issues and planning resources.

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