

THE UNIVERSITY OF MANITOBA
DESIGN CRITERIA AND GUIDELINES
FOR WAYSIDE PARK DEVELOPMENT

by

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CHAPTER ONE
INTRODUCTION

The typical concept of a wayside park is that of a mere convenience for motorists. But the view taken here is that wayside parks are not just a "convenience" - they are an integral element of highway safety. Wayside parks reduce the number of dangerous stops on highway shoulders, provide a place for weary motorists to rest, and commonly provide travel information beneficial to a safe trip.

The purpose of this thesis is to provide criteria and guidelines as to when and where wayside parks should be provided within the right-of-way of highways, and as to their scope of development. Since various classes of motorists, such as long distance truckers, casual travellers, tourists, or families on vacation, may have differing needs, methods of best satisfying their needs are provided.

Chapter Two follows a discussion of the history and development of wayside parks. It examines basic considerations for establishing an effective wayside park network, including the location and spacing of sites. An attempt is made to classify wayside parks in relation to the types of highways and kinds of driver services provided. That section leads into an inspection in Chapter Three of vital factors in the selection of wayside park sites.

Chapter Four lists and evaluates basic principles governing adequate design of wayside parks, including facilities to be developed and services to be provided. Illustrations, layout guides, and likely examples, are also included.

In Chapter Five, typical fundamentals to be considered in wayside park development are applied within the context of stopping opportunities along highways in Manitoba. A survey of motorists' use of five Manitoban wayside parks is conducted to learn from the successes and failures of existing developments, and to elaborate on the location and design criteria

put forth in the previous chapters. In particular, the survey examines highway travel and stopping patterns of motorists and attempts to determine who these motorists are, what they need, and how they can be served.

In Chapter Six, the various classes motorists are analyzed in terms of the conditions under which they drive, the constraints they undergo, and their needs to stop. An attempt is made to conceptualize a classification of individuals (a typology), and to utilize it to account in a more refined fashion, attitudes and judgments regarding stopping.

The analysis of the survey provides criteria, based upon and evaluated by, the information given earlier in Chapters Two to Four. Presented in Chapter Seven, are conclusions and recommendations derived from the synthesis of the literature and observational analyses. Included are guidelines for meeting the differential needs of various classes of motorists. A recommended procedure for creating an effective network of rest opportunities, is also put forward.

Today there is an increasing emphasis on, and recognition of, the need for providing facilities for rest and emergency stops on highways. The combined effects of higher traffic volumes, increased vehicle ownership, better roads, and increased leisure time, have created a need for planning and functional control of wayside stops along the highways. Owners of farms or residential property along highways are all too often being provided with an accelerated education in the various types of trespass by an ever increasing number of vehicles and their drivers. This situation naturally results in the lengthening wall of fences and "no trespassing" signs along highways. Moreover, parking on highway shoulders with its attendant danger in entering or leaving the travelled lanes, has long been recognized as a cause of accidents. As a consequence, it has become necessary to control and

restrict highway shoulder parking.

In Manitoba, the Provincial Park Lands Act gives authority to the development of wayside parks:

The government shall establish, develop and maintain a system of provincial park lands.

In designating any land as provincial park lands, the Lieutenant Governor in Council, by regulation, shall give to the designated area a name by which it shall be known and shall specify, in accordance with the types described in the regulations, the type of provincial park lands that the designated area is to be.

For the purpose of carrying out the provisions of this Act, according to their intent, the Lieutenant Governor in Council may make such regulations ... describing various¹ types of provincial lands, including ... wayside parks ...

By virtue of the above mentioned Act, the Parks Branch, of the Manitoba Department of Tourism, Recreation and Cultural Affairs produced guidelines for a complete and balanced system of park lands in Manitoba. These guidelines make the following statement with regards to the significance of wayside parks:

These are highway-oriented areas designed to serve transient users and consist of three types depending on the degree of service provided. Development is phased and dependent on traffic counts for the section of highway being served and on special requirements ... (2)

The preceding statement along with guidelines for location and development of wayside parks, spell out the intent of the wayside park class within the provincial park lands system. However, the criteria are very brief and fall much short of establishing comprehensive policy direct-

¹ "The Provincial Park Lands Act", Statutes of Manitoba, Ch. p. 20 Sec. 12(1).

² Manitoba Department of Tourism, Recreation, and Cultural Affairs, Park Branch, Criteria for the Provincial Park Lands System, p. 20.

ion and do not insure that the intent of this wayside park class is being met. Some wayside parks in Manitoba are out-dated, unsanitary, randomly located, and have dangerous shoulder turnouts. Examples elsewhere in Canada, also point to the lack of a comprehensive strategy for wayside park development. Obviously, there is an immediate need for factual information on the amount and character of wayside park use, as an aid to planning and the development of policy and standards.

History and Development of Wayside Parks

Wayside parks, as known today, are a modern innovation, but the principle behind them is as old as the history of man. Even before there were roads, roadside parks of a sort existed countless of centuries ago. The development of this phenomenon is illustrated by the following five examples:

1. In Arabia, North Africa, and Asia, when civilization was still very young, caravan trails were routed in a manner specifically intended to connect a series of oases. The important function served by these oases is expressed by W. Garmhausen as follows:

Here, at these water holes, the traveller exhausted after a trip over the scorching desert sands might find surcease from the blinding sun under the shade of green palm trees. Here he might quench his thirst and repair his body in preparation for another journey over the trackless wastes. (1)

2. Records of the Greek historian Herodotus, show that a great road was built in Egypt through which material was transported for use in the construction of the pyramid of Cheops. These records also show that

¹ W. Garmhausen, "Rest Areas on a State Highway System," Parking Turnouts and Rest Areas, p. 37.

- along this ancient road, temples were built for the convenience of travellers wishing to rest or worship.
3. In the days when Julius Caesar ruled his vast empire, the traveller was provided with a list called an "Itinerarium", which designated the locations of relief stops along the road.
 4. The existence of caravan-serai: A kind of inn, in the East, where caravans rested at night, commonly being a large bare building surrounding a court.
 5. In the more recent stage-coach days, taverns and inns provided physical comfort to the travelling public. But this function was later fulfilled by railway stations in the early days of travel by rail.

It should be emphasized that like the watering places on ancient caravan routes, wayside parks are modern oases for the weary motorist of today. This idea is well expressed by the title of a 1963 brochure on these facilities (state of Kentucky): "A House Beside the Road that is a Friend to Man."

The need for these roadside stops has long been recognized as shown by the following statement made in 1949 at the Annual Meeting of the Highway Research Board (Washington, D.C.):

There is a strong feeling on the part of the Project Committee that right-of-way for turnout and rest area development must be acquired before highway construction or reconstruction. This implies that driver service facilities should receive the same careful consideration in highway design in future years as traffic service facilities do receive at present.

This thought is, in fact, the main reason for this report. We cannot continue to design highways as though they were travelled by vehicles driven by automatons "wired for light, speed and sound." (1)

¹ G. Gordon, Parking Turnouts and Wayside Areas, p. 85.

During the early nineteen hundreds, when motor vehicles began to crowd other forms of traffic off the main highways, simple turnouts were first built in the United States as an occasional experiment. The original purpose behind this initial endeavor was to give the tired motorist the opportunity to pull out of traffic for a few moments' rest and relaxation.

Indeed, the first wayside parks were simply large turnouts located on widened shoulder, road fills, or abandoned roads. For instance, in the late 1920's, Connecticut started developing turnouts on areas of right-of-way left when sharp curves were relocated. These turnouts already featured smooth all weather surfaces in the form of sections of the old abandoned road. An island usually separated moving traffic from vehicles parked in the turnout. The only problem was that the majority of these "old road" turnouts were not at scenic locations, nor were they always in locations where safety turnouts were most needed. As United States Highway Research Board puts it: "The design, spacing, and capacity of these areas simply had no studied relationship to traffic whatever."¹

Other than on abandoned roads, these "wide spots in the road" included at the very most, a picnic table, trash can, and a bush. For the weary travellers, there was little opportunity to escape from the highway environment. In most cases, the picnic lunch was eaten merely 3 meters (10 ft.) from passing vehicles. Nevertheless, since this original experiment, the public's enthusiastic acceptance of this concept has been responsible for more elaborate facilities than were originally planned, leading to today's modern tourist information centers that have many of the comforts of home.

Today, turnouts and wayside parks are two types of roadside areas that perform an essential traffic service. The difference between the two

¹ Ibid., p. 67.

can be noted from their definition: (1)

Turnouts - are areas for bus loading, mail delivery, scenic outlook, and other purposes designed to provide space for one or more vehicles to park safely outside the through traffic lanes and shoulders, but within the normal right of way width. No facilities, or only very simple ones are provided. Other names used to describe this type of area are safety turnouts, mailbox turnouts, and picnic areas, depending upon the function that the areas serve.

Wayside Parks - are areas providing parking space for several or many vehicles, and some added facilities such as tables, benches, fireplaces, water, and toilets, needed for the safe and convenient use of the area by the public. Other names used for such areas are rest areas, roadside parks, wayside rest areas, picnic areas, and picnic grounds.

There can also be found a hybrid between the "turnout" as previously defined and the "wayside park", in the form of a simple parking place, sometimes gravel surfaced, with space for one or more cars, and one or two tables or benches. This is known as the picnic turnout.

Wayside parks in the United States are often referred to as Rest Areas. It should be noted, however, that the terms "rest area or wayside park" can be interpreted in more than one way. A. Ditton, Director of Landscaping Bureau of the New York State Department of Transportation, emphasizes this point: "The term rest area has various meanings. In our case, a large parking and picnicking facility with rest rooms located on a controlled

¹ G. Gordon, Parking Turnouts and Rest Areas, p. 1

access facility is a rest area." Ditton differentiates between rest area and the smaller safety parking areas, trailhead and fishing access parking, and scenic turnouts that constitute the remainder of roadside parking areas on the primary and secondary highways of New York State. His definition of rest areas is thus very restrictive in the sense that it applies only to freeway locations.

In contrast, this thesis views the concept of wayside parks or rest areas in its broadest sense, to include not only locations on a controlled access facility (i.e. freeways), but also locations on less major rural arterials and rural collectors. Included then are the following two extremes:

1. Rest areas which like those in the past may consist of only a few picnic tables and trash containers at a shoulder turnout.
2. Rest areas providing complete facilities, including ample parking spaces; toilet buildings with flush type fixtures, lavatories, hand dryers, and drinking water; picnic tables and benches; shelters; cooking grills and fireplaces; public telephones; lighted, landscaped grounds; and the necessary systems for power supply, water supply, and sewage disposal.¹

The concept of wayside park is viewed here in its broadest sense in order to be able to apply it to a wide variety of roads differing in traffic character, density, and types of adjacent land use. Such variations in road type as found in different regions or countries have implications with respect to what a wayside park should be. For example, in the United States, where roads noted for their functional efficiency and engineering sophistication carry heavy traffic volumes, a wayside park is often a very advanced facility with night lighting allowing it to be used twenty four hours a day, and provision for an on-site caretaker's house. On the other hand, Prince

¹ Highway Research Board, Rest Areas, p. 1.

Edward Island's Department of Tourism, Parks, and Conservation applies the concept of wayside park to a situation which is at the other extreme:

Facilities at Wayside Parks on country routes will be limited to a parking area and provision of picnic tables and refuse containers. This reflects the anticipated small number of users and the intent of the Wayside Park to offer a stop at a point of interest rather than an opportunity to stop and rest. (1)

By United States standards, the above stop should not be considered to be anything more than a parking turnout. In order to overcome this ambiguity, and to obtain a complete picture of roadside parking areas, the broad definition of wayside parks is justified. Moreover, it should be noted that the types of roadside parking areas differ greatly from one country to another depending on such factors as the amount of land available, and distances of travel involved. For example, in Greece where there is very little land left for roadside development and travelling distances are relatively short, wayside parks do not exist. All that one finds are merely simple turnouts. Considering that Greece has numerous rest houses along highways including service stations, restaurants, and shops, wayside parks are not really necessary.

¹ Prince Edward Island Department of Tourism, Parks and Conservation, Strategy for Wayside Park Development, p. 11.

CHAPTER TWO
WAYSIDE PARK NETWORK

To avoid such problems as unsanitary, overcrowded, or randomly located wayside parks, it is necessary to establish an effective wayside park network.

In the earliest studies of wayside parks under great variations of climate, topography, prevailing land use, and traffic on main roads of different regions, one point soon became clear: A logical formula somehow had to be found for determining where wayside parks should be located to the best advantage of the travelling public. The search for such a formula, began with the study of three general types of highways:

Suburban Highways. This is typically a main entrance to a large city or town, sometimes without adequate shoulder space, and often with curbs and sidewalks. On such a highway, traffic flows in high morning and evening tides followed by periods of relatively light traffic. The common problem here is the instant pile up of traffic that takes place during rush hours when a bus stops on the travelled way, or a single vehicle breaks down.

Whereas bus and emergency turnouts are necessary under such conditions, wayside parks on suburban highways are not needed, as a rule.

Heavily Travelled Rural Highways. Beyond the suburbs of a large city, the network of primary highways has a tendency to form a familiar pattern of spokes of the wheel. Each of these radial highways carries heavy traffic which in some cases gradually merges into local traffic at various distances from the city. Or in the case of freeways such as the United States Interstate System of controlled access highways, the heavy traffic by-passes the local traffic of towns along the way. For a long distance outside any major city, weekend and holiday traffic moves in a series of tides - rising to a high tide when the holiday period begins, followed by a drop, and then

rising high again in the returning direction when the holiday ends. Truck and trailer traffic is usually heavy on such highways.

At main intersections, service turnouts are often needed. As motorists move outward into the open country they tend to look for places to stop and rest. Thus throughout this zone of heavy traffic, wayside parks tend to be utilized to a great extent not only on weekends but throughout the week (the exception being winter time when wayside parks are closed in various parts of Canada including Manitoba). A noticeable feature of this dense traffic on primary rural roads is the large use of both turnouts and rest areas by trucks and trailers entering and leaving the cities in late evening or early morning. (However, trucks are more commonly found using these facilities in the United States than in Canada, since many wayside parks in Canada are not designated for truck use).

Light-Traffic Rural Highways. At a distance still more remote from major cities, another change takes place. In this light traffic zone, turnouts can be spaced more widely. In contrast, wayside parks are necessary and desirable in scenic locations where motorists tend to stop in large numbers.

These trends are all relative and vary from one region to another. For example, in sparsely populated areas, the light-traffic zone may be a half-hour's drive from the center of a city. But in heavily populated areas, light traffic on primary roads may be seldom encountered less than two or three hours' driving distance from city centers. Moreover in certain small heavily industrialized regions, light traffic zone may not exist at all on primary rural highways. Similarly, for smaller cities or towns, suburban traffic types may not exist beyond the built-up center of the community.

The study of the general types of highways is crucial for establishing an effective wayside park network, as it has implications with respect

to three important considerations:

Spacing and location of sites

Sizes of sites

Basic types of wayside parks.

Spacing and Location of Sites

In determining wayside park locations, many factors must be considered such as traffic volume, distance between available facilities (existing or proposed), availability of water and other utilities, climatic limitations, land acquisition costs, topography, and adequate sight distances for safe entrance and exit. It should therefore be emphasized that it is obviously impractical and futile to establish a uniform distance between sites. All that can be said is that a sufficient number of sites should be planned along the highway to reasonably accommodate the needs for safety and convenience of the motoring public, and moreover, to encourage motorists to use them as a safety measure to break long and monotonous periods of travel. Depending on the limiting factors mentioned above, wayside parks should be provided so that in combination with other stopping opportunities at or near cities and at service facilities along the highway, there will be facilities available for short stops preferably every fifty to eighty kilometers (thirty to fifty miles). This reasoning is supported by the American Association of State Highway Officials which states that "safety rest areas should be provided so that there preferably will be facilities available for short stops about every one-half hour driving time, as determined by need."¹

For controlled access highways such as freeways, where towns are

¹ AASHO, A Guide on Safety Rest Areas for the National System of Interstate and Defense Highways, p. 3.

bypassed, the spacing of wayside parks should not be interrupted because of the proximity to a town or community. The communities and towns do not always provide the opportunity for rest and relaxation. Moreover, the added time required to leave the highway and drive into town often inconveniences the motorist. The traveller is thus often inclined to push on rather than stop. Because of this, towns located near a controlled access highway should not be regarded as replacing the functions of a wayside park.

The situation is different for non-controlled access highways since they generally pass directly through cities or towns. On a heavily-travelled route with towns close together, at least one wayside park site on each roadway may be desirable between two sizeable towns with adequate facilities. Facilities should consist of restrooms, parking, water source, picnic tables, and benches. If the town cannot provide the necessary facilities, then a wayside park may be placed near the town or perhaps in the town itself. Since such a wayside park would benefit the town as well as the highway travellers, an agreement may be reached whereby the Highway Department (or whoever is in charge) constructs the wayside park leaving the maintenance responsibility to the town.

In locating wayside parks, it is necessary to avoid conflict with divergent traffic movements to and from other access connections and to provide long and clear sight distances for advance warning signs.

Particularly on heavily travelled highways, wayside parks may be located as pairs, with each site serving one direction of traffic. Such a pair should be staggered rather than opposite each other so that the site adjacent to the lanes travelled is reached before that adjacent to the opposing lanes. This pairing may be necessary in order to avoid the

dangerous situation where a motorist has to cross on-coming traffic lanes in order to enter a wayside park. Moreover, the proximity of a pair of sites could have the advantage of reducing operational and maintenance costs. But while it is desirable from an operations viewpoint to locate wayside parks in pairs, considerations of water supply, sanitary disposal, topography, etc., should be the ultimate deciding factors.

Location of wayside parks should take into consideration future changes of the type of road - i.e. the eventuality of a divided highway. For this case, the wayside park should be located adjacent to the permanent outside lane.

Wayside parks on divided highways should preferably be located on the right side of the road for traffic safety. In special circumstances, wayside parks may be located in a wide median where there is space for road connections and the necessary separating islands, and where the sight distance approaching and leaving the area are adequate for manoeuvring between the inner high speed through lanes and the speed change lanes. Indeed, wayside parks built in a widened median can be advantageous from an economical viewpoint since one set of facilities can serve both directions of traffic.

Location of a wayside park at a rural interchange often provides many benefits as discussed in Chapter Four on Design. Consideration of such sites, should emphasize locations within the interchange area in terms of the most favorable deceleration distances, and provision for the motorist to return directly to the same through traffic lanes or to head to the crossroad.

On a highway approaching an urban area, a wayside park may be useful for allowing motorists a short stop for telephoning, map reading and the like, before entering built up communities. Also, prior to entering

a city, a wayside park may be desirable in order to avoid rush hour traffic in unfamiliar territory. This type of wayside park may, in its simplest form, consist of a separated parking area for only a few vehicles, developed totally within the normal width of the right-of-way.

Location of a wayside park in the urban area itself, may be justified on the basis of the need to provide the traveller with information regarding local traffic routes, visitor and motor services, and historic and special attractions in the locality. But there may be a parking problem as in the case of the tourist office in the Manitoba Legislature Building. Very few wayside parks have been built or are planned for urban locations. This is not surprising since greater priority should be given to wayside park locations in rural areas where they are an integral part of highway safety.

Size of Sites

In determining site locations for a series of wayside parks, a major problem is that of a choice between development of a large number of small wayside parks located relatively close together, or a few larger sites with several groupings of fireplaces, tables and benches, and with related service facilities, at longer intervals along the highway.

The advantages of fewer wayside parks but larger ones, are as follows:

1. Where there are fewer sites to be maintained in a given stretch of road, they are less likely to be overlooked.
2. With increasing number of travellers accommodated in the area, the installation of comfort facilities and the provision of water supply, become justified. In turn, the availability of water reduces the danger of forest fires which is an important consideration for sites located in wooded regions.

3. In a large wayside park development, there is a certain strength in numbers. In particular, park users can police and educate one another. (But this is not to recommend such a concentration of use as would wear out say the natural features of the site and result in its despoilation - The pendulum can easily swing too far that way as well)

However a large wayside park development can have a major disadvantage. Some people drive out of the city to get away from crowds. This purpose is defeated if they stop at a wayside park and find more crowds. In this sense the public objects to large areas.

Preference for a series of smaller but more closely spaced wayside parks, is mainly based on greater accessibility and convenience to the motoring public.

However, smaller areas at more frequent intervals have the following inherent disadvantages:

1. Small and widely scattered sites require more maintenance than an equal number of picnic tables, comfort facilities, etc. in a large wayside park.
2. For small sites, it may not be feasible to provide flush toilets, adequate water supply, etc.
3. Small sized parking areas increase the unit cost of parking space provided in the layout. Construction of parking facilities constitutes a major portion of the overall cost of developing a site. As the American Association of State Highway Officials point out,

Experience in those states where some such facilities have been constructed indicates that, excluding the costs of right-of-way, the costs of constructing the connections (speed change areas and roadways) and the surfaced parking space

usually represents up to one-half of the site development cost. (1)

From the above considerations, it can be seen that in the planning of the total series of wayside parks, the motorist's preference for closely spaced areas, even if smaller, must be balanced against higher total costs including those for continued maintenance. To the extent to which it is feasible or practical, emphasis should be given to a planned development of a larger number of small to moderate size wayside parks rather than to fewer bigger areas. A small sized wayside park may be one which limits the parking area to fifteen vehicles. Sizes of sites ranging from two to five acres should generally be preferred.

However, the objective of a well distributed system of wayside parks, must fit the conditions and needs of the particular region concerned. The size of a specific site should be governed by the availability of land because of terrain (mountainous, rolling, flat), existing natural boundaries, and also the anticipated number of vehicles to be accommodated from an estimated traffic volume twenty years from the time of construction. Topography is a very important consideration for example in determining the size of a parking area - If space is available without heavy grading for say ten cars, why should more space than that be provided at one location?

Whereas terrain and site conditions will often ultimately determine the size of a wayside park, within certain limits it may be possible to, for example, develop different size of parking area at a site, possibly ranging from ten parking spaces to fifty or more. A surplus of land beyond actual physical needs may be acquired because of the advantage

¹ Ibid., p. 4.

from economic, operational, and maintenance viewpoints, of having full parcels rather than several fragments. Moreover, land may be acquired to serve as a screen or insulation or to protect or display some exceptional feature, (in most cases, acquiring this surplus land is a good investment, and it can be easily disposed of later if need be).

The size of a wayside park along the highway should preferably be one that can be constructed within the normal highway right-of-way. However if the costs of extra right-of-way for a specific wayside park site is minor in comparison with other highway costs, consideration should be given to providing sufficient space to allow for future expansion of the wayside park should it later prove to be desirable. (Wayside parks in Manitoba are generally outside the right-of-way).

Types of Wayside Parks

The development of the various types of wayside parks has a definite relationship to the kinds of roads where such areas are located. In "Strategy for Wayside Park Development, Prince Edward Island",¹ three distinct types of routes are considered:

1. Provincial routes: In Prince Edward Island, these routes provide inter-regional connections, and connect major Island points on an uninterrupted basis. They are all weather roads accommodating heavy volume and varying types of traffic.
2. Scenic routes: These routes provide intra-regional connections. They are paved and basically approximate the Provincial scenic drives.
3. Country routes: In general, these are inland roads which might not be paved, providing access to points of scenic, natural,

¹ Prince Edward Island's Department of Tourism, Parks, and Conservation.

historical, or cultural interest.

The routes identified above have different implications with respect to Prince Edward Island's policy guidelines for facilities and visitors use. For Provincial routes, the guidelines call for fully serviced wayside parks providing a wide range of modern facilities. But for Scenic routes, the plan is for moderately serviced areas with a limited range of semi-modern facilities designed to reflect the less intensive use of the route. Finally, for Country routes, the plan is for minimally serviced area with a minimal range of non-modern facilities, reflecting the low number of expected users on these generally unpaved roads, and the intent of the wayside park to offer the opportunity to stop at a point of interest rather than to stop for rest.

It is interesting to note that under these policy guidelines, cyclists are certainly encouraged to use wayside parks on Scenic routes - The rationale being that these routes have lighter volumes of truck traffic and lower maximum speed limits than Provincial routes. In particular, such wayside parks service bicycle routes that intersect the motorists' Scenic routes (bicycle racks being provided). Similarly cyclists are encouraged to use wayside parks on Country routes although facilities in this case are not specifically provided for cyclists. In contrast cyclists are not encouraged to use wayside parks on Provincial routes due to heavy traffic volumes which would jeopardize the safety of cyclists.

Also, with regards to safety and convenience, the guidelines stipulate that deceleration and acceleration lanes may be provided for wayside parks on Provincial or Scenic routes, but that Country routes do not necessitate such extensive provision to maintain an adequate level of safe use.

All these types of designs in relation to highway types, are essential if highway lanes are to carry traffic safely and to their full

capacity.

Taking into consideration the ideas presented in this chapter, a wayside park network could be comprised of three basic types described as follows:

1. Major Wayside Parks which are required to facilitate traffic volumes commonly found on Heavily Travelled Rural Highways. Major wayside park facilities should be based on findings of a wayside park usage study for the particular area involved (as discussed in Chapter 5). Generally speaking, facilities should include a modern rest room, potable water supply, picnic tables, information panel and perhaps also the following: trailer dump station, and pet exercise area.
2. Minor Wayside Parks which are needed to facilitate traffic volumes typical of Light-Traffic Rural Highways. Facilities should again depend on a wayside park usage study for the area involved. Generally they should include rest rooms, potable water supply, picnic tables and some landscaping. Pit toilets may be considered in wayside parks on routes with very low traffic counts.

Minor wayside parks could also take the form of Scenic Overlooks or Trailhead Parking areas but these special cases are not limited to any particular type of highway. Scenic overlooks should be designed for short term use and picnic tables and cooking grills should not be provided. Trailhead Parking Areas to service hiking trails that intersect rural highways, should only provide safe parking off the travelled way (i.e. picnic

facilities should not be included).

3. Information Centers whose primary function is to dispense information. At the same time it should offer the services and facilities of a major wayside park (with the exception perhaps of picnic facilities). Information Centers should be located near Provincial/State borders on major traffic routes. It should provide a qualified personnel offering provincial/statewide, regional, and local information relating to tourist needs.

CHAPTER THREE
SITE SELECTION

The key to intelligent site selection lies in a comprehensive study of all potential wayside park sites over the whole route between major control points such as large towns. Wayside parks should be located at "climax points" - sites which offer the optimum of safety, usefulness, economy, and scenic values. Observation of traffic (including traffic counts to determine the number and proportions of commercial and passenger vehicles), and above all, of behaviour of drivers as they travel and stop along the roadside, will often demonstrate desirable wayside park locations. This use of the public in selecting sites is essential. It represents a study of human nature which is indeed a most critical area of study in the whole field of highway development.

The following should guide site selection (There may be additional factors under special cases as no two sites are identical):

1. Safety and Economy. Sites should be selected where long clear sight distances exist or can be economically provided. According to the Manitoba Parks Branch, highways require a sight distance of 1000 feet (305 meters) both ways for any driveway. Since safety is a prime consideration, the ability to provide a safe entrance and exit must be determined before giving any further consideration to selecting a particular site. At a road bend, it is necessary to avoid the inside curve location, as a wayside park located outside the curve is more in line with the driver's normal orientation and could thus be more readily seen. Moreover, crest of hills should be avoided in general due to inadequate sight distance and related safety considerations.
2. Natural Amenity. Sites with natural advantages including wooded areas, streams, lakeshores, exceptional scenic views, and points

of special interest, are desirable. In fact, the "drawing power" of any natural features seldom seen in the area may indicate an exceptional site for a wayside park. Selection of such sites is often made because the public began to use the area before any facilities were provided. In certain regions as in Prince Edward Island, wayside parks can be located not only on those sites which offer a great opportunity for viewing the panorama of the landscape or seascape, but also in places which allow for appreciation of the landscape on a more confined, localized scale. By focussing on these more localized opportunities, travellers are encouraged to become more involved with the landscape or seascape:

To pick shells or pebbles from a beach, sit beside a mill pond, stand near or enter an historic site or building, in short, appreciating the subtleties of the Prince Edward Island landscape through more localized intimate experiences. (1)

3. Grades. Preference should be given to sites that do not require heavy grading to provide access from the travelled way. Grades steeper than about four percent on connecting roadways leading to or from the parking area, are usually not considered safe.
4. Drainage. Sites should have good natural drainage, requiring relatively little grading and excavation.
5. Water. The availability of an adequate and safe water supply is essential for both drinking water and sanitary disposal. (Alternatives to obtaining water are discussed in Chapter 4 under "Water Supply").

¹ Prince Edward Island Department of Tourism, Parks, and Conservation, Strategy for Wayside Park Development, p. 8.

6. Proximity to City. In general, wayside parks should be located no closer than half an hour drive (i.e. 50 km or 30 miles) from the limits of major towns or cities. Similarly, sites within existing or potential residential areas, are generally not desirable. A wayside park which is very close to a city tends to be used almost entirely by the residents of the city. By being pre-empted for local rather than traffic use, such a site tends to become a city or country park.
7. Land Values. In view of the cost of land to be acquired beyond the normal highway right-of-way, sites should be of minimum size in accordance with topography and the number of people to be served. In particular, sites should be preferably smaller near suburban areas, and bigger when remote from population centres because of lower land values. However, consideration should be given to expansion opportunity.
8. Land Use Relationships. A wayside park should not conflict with the surrounding land uses.

(a) Relationship to Residential Properties

A wayside park should not be located where it would have a negative effect on scenic views of existing homes, or cause some other visual or auditory intrusion. For as the New York Department of Transportation points out:

Experience has demonstrated that nearby residential property owners resent a roadside parking area in sight or sound of their homes. Prior approval must be obtained from the affected area residents before giving further consideration to locating a safety parking area in such a situation. (1)

¹ New York Department of Transportation, Highway Design Manual.

(b) Relationship to Commercial Properties

The objectives in providing wayside parks are not compatible with commercial development. A wayside park should not be located immediately adjacent to roadside restaurants, service stations, or other private business development, for any one of the following reasons:

- (i) The visual and auditory intrusion caused by such developments can be detrimental to the experience of wayside park users.
- (ii) Commercial involvement may attract too many people to the wayside park and thus may lead to overcrowding.
- (iii) The scenic view from a wayside park could be adversely affected by nearby developments taking place, within the panorama of the landscape.
- (iv) Regarding commercial establishments, a safety factor is considered where traffic has to stop for other purposes than to use a wayside park.
- (v) A wayside park located next to a business may create competition. For example, the opportunity to picnic in this wayside park location, may result in a loss of potential revenue for the commercial establishment.

(c) Other circumstances

From the landowners point of view, wayside park sites next to wheat fields, orchards, nurseries, or other crop areas are undesirable. Similarly, a wayside park adjacent to a cattle grazing area or a vegetable processing plant may arouse complaints from wayside park users concerning the adjacent land use.

One may argue that the situations presented above eliminate all potential sites. However the intention here is basically to point to certain wayside park locations which are less desirable than others (design also influences impact). Obviously, it is necessary to consider and evaluate all surrounding land uses (including anticipated changes in adjacent land use) before locating a wayside park at a particular site.

9. Land Acquisition. Consideration should be given to the cost of land area to be acquired beyond the normal highway right-of-way.

Simple turnout sites are usually within the normal right-of-way widths and thus land acquisition is no problem. However, "the cost of land outside normal right-of-way is frequently 'the straw that breaks the camel's back' as far as acquisition of rest-area sites is concerned."¹ The explanation for this lies in the fact that highway construction or relocation is usually followed by new developments including service stations and restaurants, raising land costs by several hundred percent. Consequently on the older heavily travelled highways with unlimited access, it may be virtually impossible to acquire the most desirable sites by any practical means.² It should therefore be emphasized that for the most economical purchase of a wayside park site, the proper time is when the original highway right-of-way is being acquired.

By the same token, if the desirability of providing wayside

¹ G. Gordon, Parking Turnouts and Rest Areas, p. 6.

² This refers primarily to the situation in the United States, and has only minor application in Manitoba (Trans-Canada Highway Number One in some places.)

parks is studied as the highway design is progressed, then a minor modification in the proposed highway alignment or profile in the early design stages, may make it possible to locate a wayside park at a fine viewing spot or to take advantage of other outstanding natural features.

10. Other Utilities. The cost of supplying utilities including electric power and pay telephone service should be considered in selecting possible wayside park sites.
11. Sewage. The ability to dispose of sewage should be considered. (This is discussed in Chapter Four under "Sewage Treatment").
12. Maintenance and Policing. The feasibility and economics of maintenance and policing should be evaluated.

In order to determine the relative safety, convenience and scenic value of alternate sites, an examination of aerial photographs or ground reconnaissance is necessary. Large scale topographic maps of the best choices of wayside park sites should aid the designer in estimating total cost of the development as planned. Final selection should depend, among other considerations on cost estimates of a wayside park in terms of the cost of services provided per visitor accommodated.

Whereas the location of a wayside park should normally be based on the factors mentioned so far, the location of wayside stops in environmentally sensitive sites (i.e. lake and stream edges, wetlands, areas deficient in soil, steep slopes, and recognizable wildlife habitats), must be based on additional site protection criteria.

Site protection criteria relate to considerations for protecting

the physical or ecological integrity of a particular piece of land. Certain locations of wayside stops may have disruptive affects on the environment, i.e. erosion, siltation, poor drainage, etc. Parking areas improperly located near streams can trigger uncontrolled runoff and erosion into the water bodies. To overcome this problem it is sometimes necessary to avoid locating wayside stops on the edges of streams lakes or ponds.¹ Instead sufficient room should be maintained between the parking area and the water body to filter surface runoff from the parking area into vegetation before it reaches the water body. Design Guidelines for Forest Management² suggest the following rule of thumb distances based upon good soil drainage and ground vegetation:

<u>Slope between facility and water body</u>	<u>Width of vegetation strip</u>	
<u>Percent</u>	<u>Feet</u>	<u>Meters</u>
0	50	15
10	90	27
20	130	40
30	170	52

Water courses are commonly bounded by stepped terraces with easily erodible banks. In a situation where a stream bank is multi-terraced, an attempt should be made to locate the wayside stop at least one terrace removed from the stream unless the terraces are extremely wide and the wayside stop can avoid the streambank. In locating a wayside stop it is especially important not to disturb either the top or the bottom points of the slope of the adjacent bank as these are the

¹ One can argue however, that with proper planning and financial resources, this problem of uncontrolled runoff and erosion can be eliminated.

² Design Guidelines for Forest Management, Ontario Ministry of Natural Resources, p. 35.

most critical erosion points.

Soil erosion is also a potential problem in areas of shallow soils, steep slopes or sandy soils. Generally speaking, location of a wayside stop in these areas should be avoided.

Where possible, a wayside park should be located on naturally flat areas in order to prevent destruction of adjacent areas by bulldozing operations necessary to create level areas. Where feasible, the removal of topsoil, surface vegetation and stumps by bulldozing should be avoided since this may create erosion problems. Moreover, wayside parks should be kept as small as possible, consistent with their functional operation. In addition, lowland regions which are poorly drained should generally not be used as sites for wayside parks.

An attempt should be made to keep wayside stop locations away from areas of rocky ridges and depressions. In such cases, a wayside park would depend for the most part on fill to achieve acceptable grade. Where suitable gravel is not available, an alternate site should be selected to minimize excavation.

Considerations for a wayside park location should also incorporate an evaluation of existing wildlife, their habitat requirements and movement as well as the predicted effect of the wayside park upon all relevant factors of their environment. Every effort should be made to ensure that the location of the wayside park would minimize potential conflicts between wildlife and this facility.

One of the most serious problems which may result from the location of a wayside stop is the interference with animal movements. Extensive seasonal movements are characteristic of many species of wildlife particularly hoofed mammals such as deer, as they inhabit summer and winter ranges which may be separated by more than 100 miles.¹ An

excellent example of these seasonal animal movements concerns a dramatic event which was sighted while travelling on a road in the Interlake region of Manitoba.² This event took place in the fall when literally thousands of snakes crossed the road making it an unbearable situation for motorists. This is obviously no place for a wayside park at all. Such potential conflicts between wildlife and a wayside park must be identified and considered early during site selection.

Consideration must also be given to impacts on wildlife of physical disturbances involving removal of essential components of habitat such as key forage areas, nesting sites, breeding grounds, or essential escape cover. The location of a wayside park where such damage to sensitive areas will occur, should be avoided.

Aside from site protection, consideration may be given to locating wayside parks where they could provide visual and psychological relief to the motorist. For instance, if driving endless miles through thick forest cover, a wayside stop at a meadow may be desirable for helping to achieve a feeling of bursting out into a large opening (human nature must be taken into account).

Surprisingly enough, even borrow pits which are often kept out of view due to their unsightliness can sometimes serve as wayside park locations. Borrow pits that are no longer required for maintenance often pose an erosion problem. But when utilized to serve a future purpose as a wayside park, not only can the problem of erosion be over-

¹ AASHO, Planning for Wildlife, A Design Guide for Wildlife Protection and Conservation for Transport Facilities, p. 12.

² Meeting held with Dr. Styliaras, Department of City Planning, University of Manitoba, December, 1977.

come, but they can also become valuable viewing areas. For example, borrow pits adjacent to existing roads can be graded to provide a smooth and gentle slope and a wider field of view. Sometimes wildlife benefits may be enhanced if borrow pits are planted with grasses or shrubs. Moreover, borrow pits have the potential to become valuable waterfowl viewing areas in cases where they are flooded due to a high water table. Such features are often very desirable for a wayside park. The United States Federal Highway Administration has illustrated some successful examples of pleasing and imaginative wayside park developments where a borrow pit lake is designed as an integral part of the wayside park with irregular shoreline and flat slopes.¹ This experience in the United States should serve as stimulus to those responsible for site selection.

Another uncommon location for a wayside park but one that is nevertheless worth considering is where trails off roads have potential for recreation, wildlife viewing or hiking. In such areas a wayside park may offer a convenient stopping place for vehicles thereby avoiding disruption to traffic flows and protecting the site from uncontrolled access. Care should be taken to locate the parking area where it could permit clear and easy access to the trails. Access to the trailhead between parked cars should be avoided.

An attempt should be made to avoid a wayside park location in a scenic lookout area where its parking facility would interfere with the quality of the view from the highway. This may be achieved by locating the parking to one side of the vista thus allowing uninterrupted view from the highway.

¹ Safety Rest Area Development, FHWA, p. 28.

Moreover, natural features of aesthetic value including waterfalls, rock outcrops etc., can easily be reduced in value by a poorly located wayside park: In many cases it is advisable to avoid placing the wayside park within a natural feature, but to locate it instead at a short distance away, or adjacent to the feature so that it can be appreciated from the site or from a short trail.

There are still other considerations but unlike primary controls such as sight distances and landownerships, they are usually of secondary importance. One such secondary control differentiates between scenic features that can be appreciated from a moving vehicle without the need for stopping, and scenic features that necessitate a stopping place. An understanding of the relationship between the speed of a moving vehicle and the field of view of the driver will aid in site selection. Design Guidelines for Forest Management describes the relationship as follows:

At 25 miles per hour (40 km.), a driver's angle of vision is approximately 100°, focused about 600 feet (183 meters) ahead of his vehicle. The roadbed occupies about 8 percent of his field of view, and the roadside 80 percent. The balance is sky.

At 60 miles per hour (97 km.) the angle of vision is reduced to 40° and the focal plane up to 2000 (610 meters) feet ahead of the car. The roadbed expands to 10 to 15 percent, and the roadside occupies approximately 50 percent of the field of view. In flat terrain, the roadside can be reduced to as little as 15 percent, with the balance taken up by the sky. (1)

From the relationship described above, it follows that at low speeds the foreground, middleground, and background may all be perceived by the driver. By the same token, at higher speeds, the background is

¹ Ontario Ministry of Natural Resources, p. 61.

in focus and the roadside is a blur. The implication for wayside park location may be as follows: distant scenic view on a high speed road can be treated as dynamic vista in the sense that it may be perceived and appreciated while driving. Consequently, a wayside park may not be necessary in this case. But if on a high speed road, a major scenic feature is forced into the foreground by other locational constraints, the most pleasing and safest solution is to treat the view as stationary rather than dynamic vista and allow people to stop out of the way of through traffic. Such a spot may be an ideal location for a wayside park.

Indeed a stationary vista (viewed from a parked vehicle or on foot) is appropriate to outstanding views, interpreted views (i.e. historic feature), and those views which are forced into 90° angle to the road. Such a secondary control can often dictate the best choice of a number of alternative stopping places - the best wayside park locations will respond to all primary controls, and the maximum number of secondary controls.

CHAPTER FOUR
DESIGN OF WAYSIDE PARKS

1. GENERAL OVERALL DESIGN

Wayside parks should be designed to accommodate traffic volumes projected 15 or 20 years in the future. Possibilities for expansion should also be incorporated into the design since there are many variables and uncontrollable factors affecting usage of wayside parks. These considerations are essential as past experience has shown - for example, T. Thompson, Highway Landscape architect for the State of Nebraska, notes the following:

Nebraska built its first 6 rest areas in about 1963, and since then the guidelines have changed because usage has been greater than expected. In 1963 design criteria was based on 3 to 5% of the A.D.T.* for a 10 year projection. Today we use 11 to 13% on a 20 year projection. From this you can see why we have had to go back and remodel and update older rest areas. (1)

Wayside parks should generally be planned only for short term use by the motorist, and in most cases should not be intended to be used for overnight parking, camping, active recreation, and waterfront activities.

The real question regarding the development of roadside parks to include recreational activities, is in the definition of the word recreation. There are two kinds of recreation defined as "active" and "passive". Consideration of recreational facilities should be limited to passive recreation only - i.e. enjoyment of a view by provision of benches; the opportunity to "stretch a leg" through a forest grove, about a historic site, or the opportunity for photography provided by wildlife trails. Whereas children's play equipment is ideal (i.e. slide, swing), facilities

* ADT is a common abbreviation for the term Average Daily Traffic, defined as the average 24-hr. volume, being the total volume during a stated period, divided by the number of days in that period. Unless noted otherwise, the period is a year.

¹ This was mentioned in a letter personally received from T. Thompson, dated January 6, 1978.

for such active recreation as tennis, baseball or golf are inappropriate for development in any part of a highway right-of-way and should be ruled out at once. Activities of the latter type usually interfere with the rest and normal safety functions of wayside park development.

Design Objectives

1. To provide essentials for safe and convenient use by vehicles. These include but are not limited to:
 - (a) Clear sight distance at both ingress and egress points.
 - (b) Avoidance of steep grades in entrances and in driveway design.
 - (c) Curbs (in larger waysides) or guide posts (in smaller sites.)
 - (d) Buffer zone separating parked vehicles from moving traffic.
 - (e) Provision for acceleration and deceleration of vehicles.
 - (f) Driveways with adequate width.
 - (g) Adequate turning radii for trucks and recreational vehicles as well as passenger vehicles.
 - (h) Adequate number and sizes of parking spaces including provision wherever possible for the largest type of vehicle being used.
2. To provide essentials for safe, convenient, and sanitary use by the travelling public. These should include the following:
 - (a) Water supply.
 - (b) Toilet facilities.
 - (c) Picnic tables and benches.
 - (d) Fireplaces.
 - (e) Signs and markers.
 - (f) Shelters.
 - (g) Telephones.

- (h) Fences and barriers.
 - (i) Planting, seeding, and other operations to provide shade and protect the whole area against erosion.
3. To conserve and make necessary improvement of existing natural features of the wayside park, including but not necessarily confined to:
- (a) Design of parking area(s), driveways, and footwalks to prevent compaction of soil around grasses, trees, shrubs, or other ground covers.
 - (b) Selective removal and pruning of trees and shrubs that interfere with sight distances, exceptional views etc.
 - (c) Proper location of wayside park facilities with respect to streams and lake shores, in order to prevent water pollution or siltation.

Terms Used

The different terms used in this chapter are illustrated in Figure 1. Shown is a simple but modern wayside park with a comfort station, tables and benches. The site covers a land area extending beyond the normal highway right-of-way.

The deceleration lane and entrance roadway constitute the facilities for entering the wayside park, whereas the exit roadway and acceleration lane constitute the facilities for leaving the wayside park.

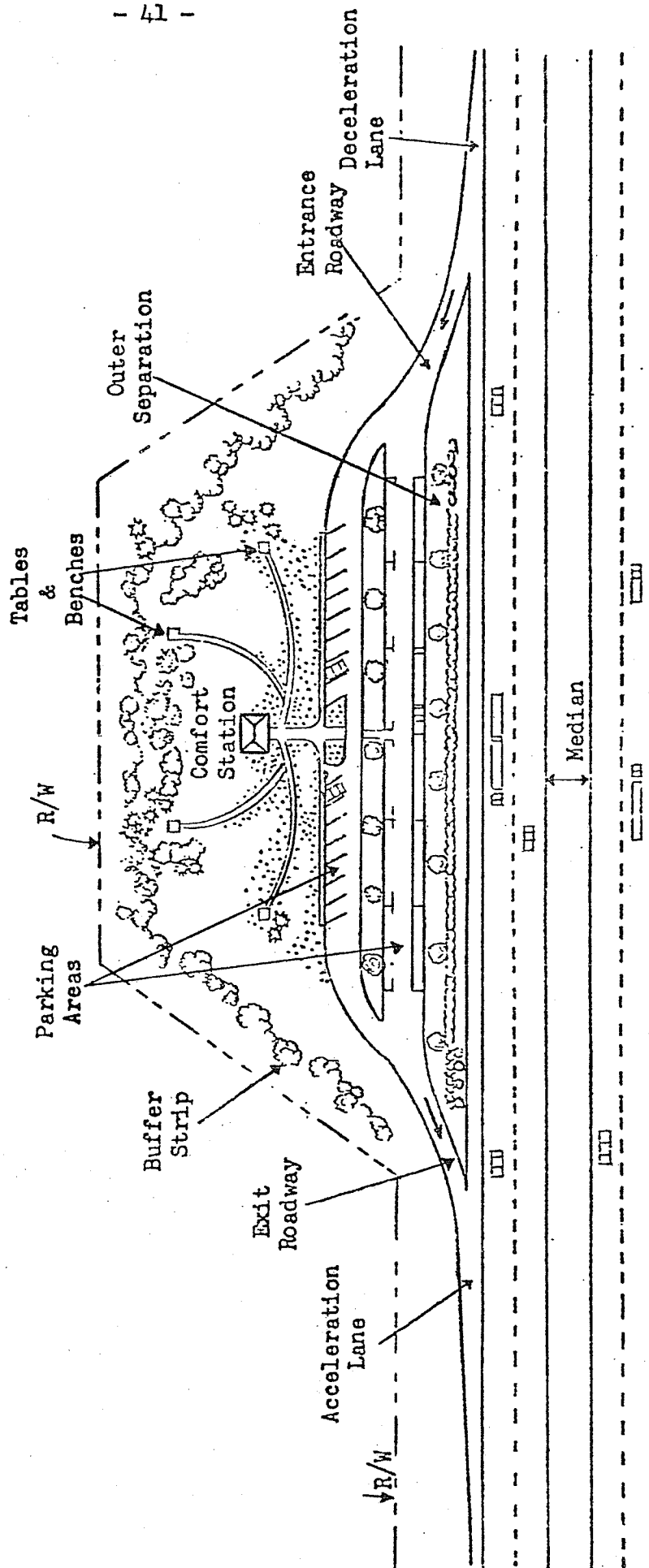
Design Principles

The following principles should guide the general overall design of a wayside park:

1. It is most important to design a wayside park to fit the individual site. In particular, wayside parks, including their roadway connections,

WAYSIDE PARK TERMS USED

FIGURE 1



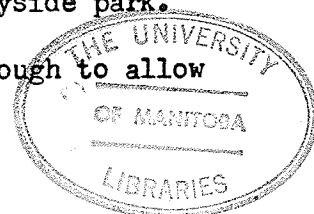
should be developed with the minimum feasible disturbance to topography and existing vegetation. Shade trees and other natural features should be conserved and protected wherever feasible to increase the value of the wayside park for use by the travelling public.

2. On heavily travelled highways, exit and entrance connections with the through-traffic lanes should be designed with appropriate acceleration and deceleration lanes, tapers, widths, curvatures etc. to ensure safety and freedom of movement on the through-traffic lanes. The acceleration lane should be long enough to allow large recreational vehicles to accelerate to highway speed. On divided highways, these connections and the driveway through the wayside park should be one-way only.

The surface of the entrance and exit roadways should be different from that of the main road in color and texture, to clearly indicate to the driver, even at night, that he is off the travelled way. (This however may not be appropriate for winter in some areas.) Particularly where an entrance to a wayside park is on the outside of a road curve, this contrast in color and texture is necessary in order to avoid leaving the main road without intent to do so. This idea is in line with principles regarding shoulder surfaces in general.

3. Initially, an adequate area should be acquired to provide "insulation" or a buffer between the wayside park and the surrounding property and to allow additional space for expansion.

4. From the point of view of safety, and auditory and visual intrusion, there should be a buffer strip, minimum of 15 meters, between moving traffic on the highway and standing vehicles within the wayside park. Nevertheless, this outer separation should be just open enough to allow



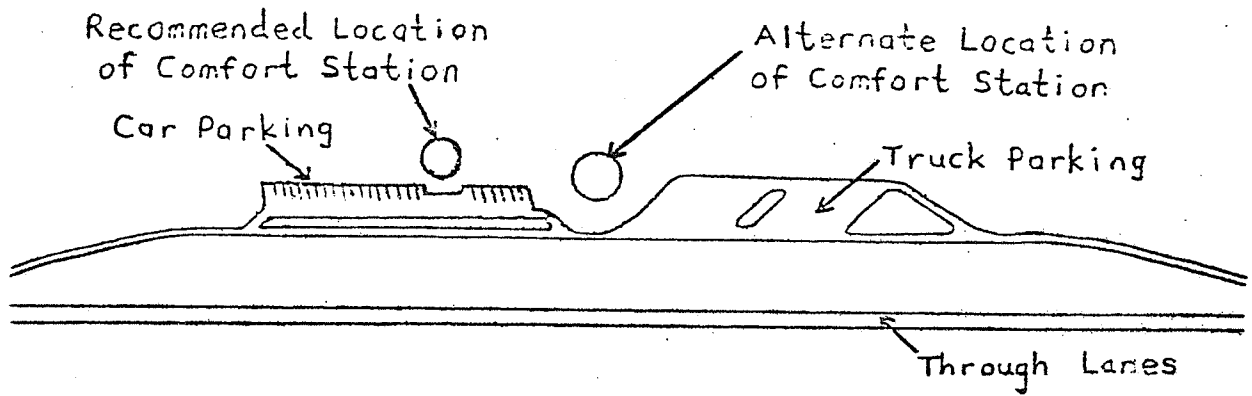
some of the parking area to be seen from the highway, particularly for police and maintenance patrol. If highway police objects to having a screen of trees which somewhat hide wayside parks and their facilities from the road, a low screen planting would help to keep children or animals from running out into the path of traffic.

- 5 (a) At those points where a relatively large number of carrier trucks would congregate, it is often advantageous to physically separate car parking from parking for trucks and recreational vehicles. Where space permits, the parking area for bigger vehicles of the latter type should preferably be of the drive-through type so that they would not have to back up in order to leave the wayside park. Consideration should be given to having the parking area surfaced with a suitable all-weather surfacing.
- (b) Where there are separate parking areas for cars and trucks, the comfort station or toilet facilities should if possible be located between the two parking areas in order to avoid pedestrians crossing a parking area.

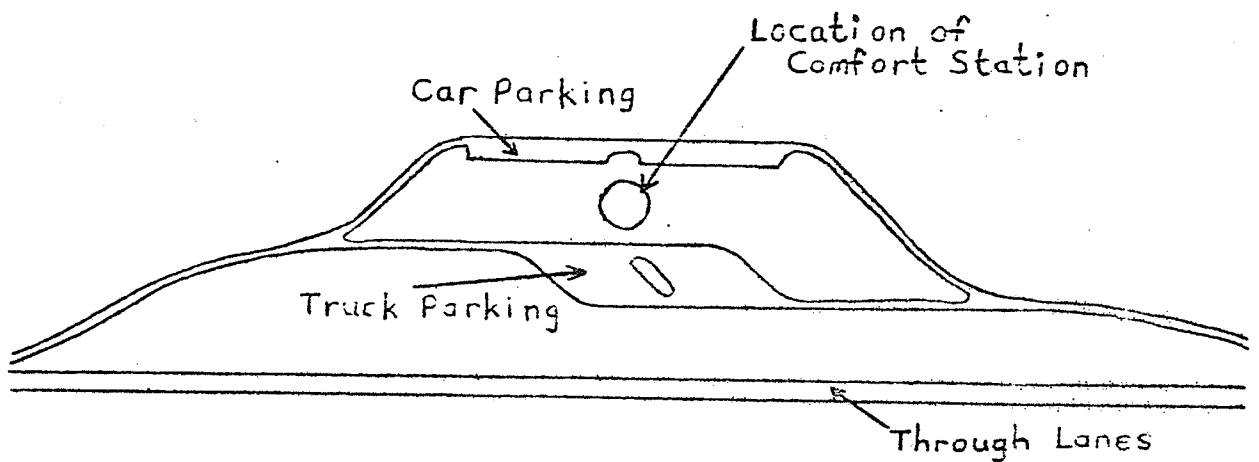
The parking schemes illustrated by Figure 2, indicate basic designs which could be utilized for many site conditions. Nevertheless, topography or other design controls may necessitate a variation of what is shown, or may even dictate a totally different solution. The "linear" design allows the placement of the toilet facility and picnic areas at the back side of the parking pavement eliminating any need for pedestrians crossing of the parking area roadway. The "parallel" design is suitable to sites where the "linear" design is not possible because of topography or other reasons.

DESIGNS OF SEPARATE PARKING
FOR CARS AND TRUCKS

FIGURE 2



LINEAR DESIGN



PARALLEL DESIGN

6. Between the entrance and exit connections to a wayside park, the through-traffic roadway should be posted to prevent motorists from stopping for other than an emergency. Similarly posts should be erected on the far-side shoulder of the through roadway to prevent motorists from stopping on it and walking across the through-traffic lanes to the wayside park. On divided highways, consideration should be given to using a fence or other suitable barrier in the median for sufficient distance to obstruct its crossing by vehicles or pedestrians.

The right-of-way of wayside parks should also be fenced to maintain control of access or to prevent commercial encroachment, and to define the limits of the site.

7. Buildings and facilities should be designed for use by the physically handicapped to the extent to which it is practical and feasible.¹

8. Walks or paths should connect facilities such as toilets and wells, to each other, as well as to the parking area, in order to allow all-weather usage.

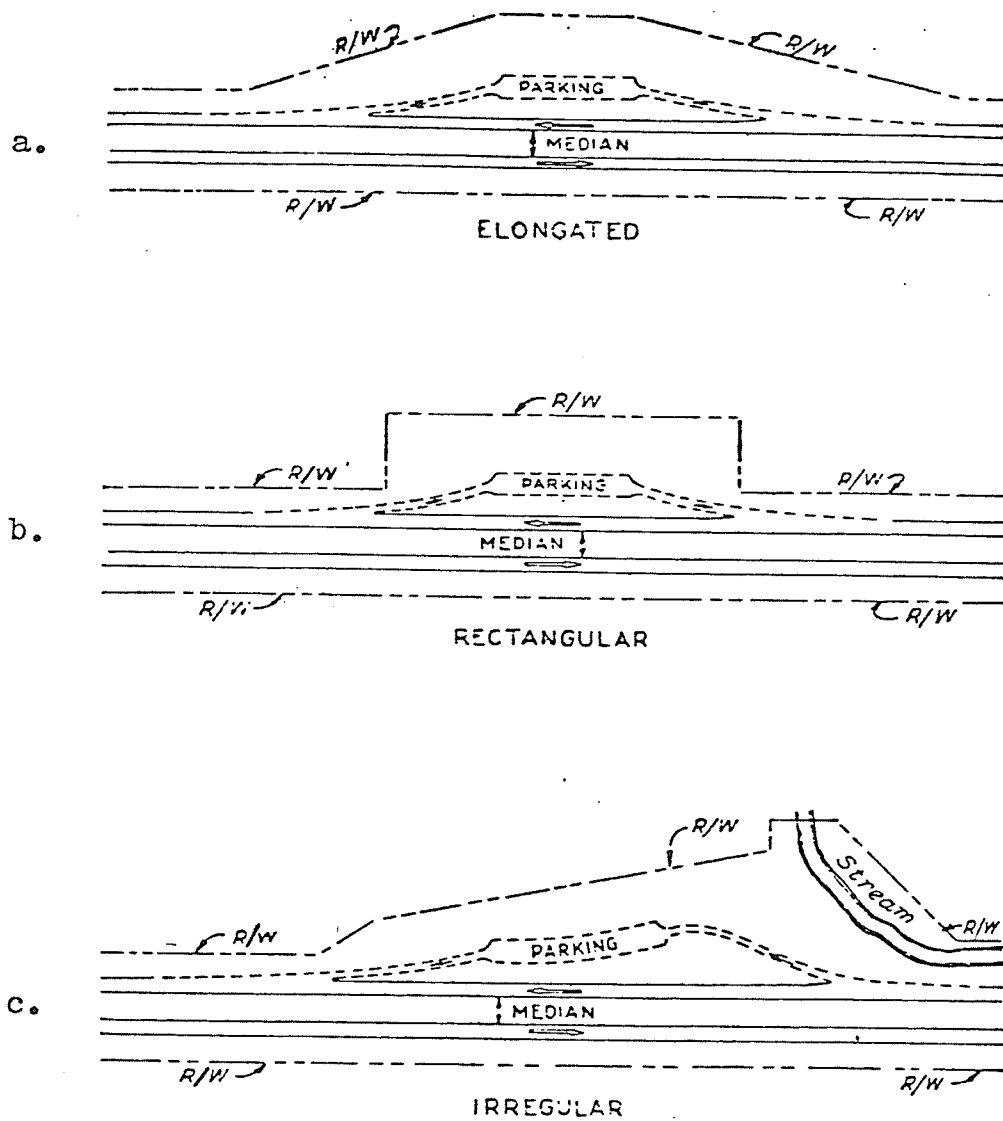
Site Patterns

The space for a wayside park can be elongated along the highway as shown in Figure 3a. The gradual widening of the right-of-way is advantageous in allowing variations or adjustments in design to conserve trees or to fully utilize scenic or landscape values. Moreover with this shape, the length of the right-of-way fence or other barrier can be kept to a minimum. But if not deliberately made oversize, this elongated pattern may have limited space for development making it

¹ One may also be obligated by law to convert, as is the case in Manitoba.

SITE PATTERNS

FIGURE 3



inflexible in meeting future needs.

In contrast, the rectangular pattern shown in Figure 3 b is appropriate for relatively flat land where scenic views, woodlands, streams, etc., are not important. However compared to the elongated pattern, greater length of the right-of-way fence or other barrier is required. Whereas the rectangular shape may simplify the acquisition of the right-of-way, the pattern restricts adjustments in design to conserve natural features.

An irregular pattern may be necessary for locations with uneven terrain (Figure 3 c). An attempt should be made to fit the wayside park boundary line in relation to natural borders such as rivers, lakeshores, rock cliffs, or some other natural obstacles. Such an irregular pattern is useful in facilitating conservation of scenic views and other landscape features. These locations frequently pose difficulty in adapting facilities to the non-level ground, thereby necessitating special attention in design.

For site development, heights of cut and fill, widths of pavements and graded slopes, and locations of natural features to be conserved, are often so varied that best results can be achieved by preparing a grading plan of the proposed development in relation to existing ground contours, trees, streams, etc. On the grading plan, planting design can also be shown.

11. CONSERVATION OF NATURAL FEATURES IN WAYSIDE PARKS

In contrast to the turnout which is basically an extension of the traffic surface, a wayside park includes natural features that need protection from vehicles and pedestrians. Unless care is taken to preserve desirable trees and other vegetation, shoreline areas, and streams

within or adjacent to the site, the wayside park would lose much of its appeal to travellers.

To a large extent, keeping natural vegetation healthy requires "leaving it alone." Changes to the natural growing conditions, have a tendency to damage growth. The usage of wayside parks by motorists, necessitates measures to avoid the following:

1. Compaction of the Soil. Vegetation will be destroyed by compaction of soil over tree-root areas or under growing shrubs or grasses. Consideration should be given to using curbs, bumper rails, or other barriers to confine vehicles to driveways and parking areas. Moreover, well defined gravel or stone walks may be necessary to reduce the possibility of pedestrians compacting soil.
2. Harmful Materials. Continuous dumping of wood ashes over tree roots could kill desirable shade trees. Wood ashes should therefore be cleaned up and kept away from vegetation. Drainage from fireplaces should be carefully controlled so as not to destroy plants and certain types of ground covers. Weed killing compounds should be used with caution since they kill many plants other than weeds.
3. Fire. Well designed and controlled fireplace locations are essential in order to prevent ground fires from spreading and killing natural vegetation. This matter is dealt with later in this chapter under the subheading Fireplaces.

The location of parking areas, picnic tables and benches, and shelter, must be considered in order to take advantage of scenic views of mountains, lakes, etc. In forested areas, heavy clearing of trees is often needed to open up a fine view. This may have to be followed by

periodic selective cutting and tree pruning to keep open that same view. Careful design of wayside park features from which fine views are seen, is important in reducing the need for subsequent pruning of trees and removal of young trees.

Water conservation is also of major importance since clean unpolluted water is vital to humans and wildlife. Picnic tables and fireplaces should be kept a reasonable distance away from streams and lake-shores to discourage dumping of ashes, garbage, or tin cans. Proper location of toilets so as not to contaminate water is also essential.

Whenever a site is disturbed by the construction of a wayside park, it should be mulched and seeded immediately after grading, to avoid siltation into water bodies.

Any wayside park development which causes pollution of water or siltation is in fact a public liability and a hazard to public health.

111. ESSENTIALS FOR SAFE AND CONVENIENT USE BY VEHICLES

Entrance and Exit Connections

When undue deceleration or acceleration by vehicles leaving or entering a wayside park, takes place directly on the highway itself, it interferes with the flow of through traffic and is often dangerous. To avoid or minimize these problems, consideration should be given to using speed change lanes.

A speed change lane is an auxiliary lane (with tapered areas), providing for acceleration or deceleration of vehicles entering or leaving the through traffic lanes. The term speed-change lane, deceleration lane, or acceleration lane refer to the additional pavement connecting the travelled way of the highway with that of the turning roadway. It

is important that the speed change lane be of sufficient width and length to enable drivers to properly manoeuver their vehicles onto it and once on it, to make the required change between the speed of operation on the highway and the reduced speed on the turning roadway.

It is not possible to state definitely where the use of speed-change lanes is warranted. There are many factors to consider such as speed, traffic volume, capacity, type of highway, accident experience etc. But in general, speed change lanes are warranted for wayside parks located on high speed and on high volume highways. Where a deceleration lane has not been provided for a motorist to slow down, the failure of following drivers to brake due to inalertness, has caused many rear-end collisions. On the other hand, an acceleration lane is advantageous on all heavily travelled highways where openings between vehicles in peak hours, are short and infrequent.

Shown in Figure 4 are deceleration lanes and entrance roadways constituting facilities for entering a wayside park. A parallel decelerating lane as in Figure 4a needs less grading and paving than the other types shown. Moreover with this type of design, it is possible to have a generous length along which a motorist in the through lane may pull over onto the deceleration lane.

Another method is to combine the entrance roadway and deceleration lane into a continuous taper as in Figure 4b. This has the advantage of a smooth alignment which is often appropriate for relatively high speed. However it is necessarily dependent on signing to reduce the vehicles' speed for entering the parking area, to a safe speed of say 25 km. per hour or less. Moreover, in comparison to Figure 4a, a shorter distance is available along which a motorist in the through lane may

pull over onto the decelerating lane.

Figure 4c shows a different design for combining the entrance roadway and deceleration lane into a continuous taper. With this design, a generous length of roadway can be provided for the necessary reduction of speed after leaving the through lane. The radius of curve (approximately 25 meters) at the entrance to the parking area is in accordance with the desired reduction in speed of vehicles which enter. In comparison with Figures 4a and 4b, a larger pavement area and greater width of right-of-way are necessary. However, depending on terrain conditions, a roadway of this length or longer may be required to develop a suitable profile for the connection.

Exit roadways and acceleration lanes for leaving wayside parks are illustrated in Figure 5. A parallel lane with a taper, as shown in Figure 5a, has the advantage of ample distance for traffic in the acceleration lane to merge with traffic in the through lane. However, with such a shape, some vehicles may abruptly cross into the through lane immediately beyond the merging end, before attaining adequate speed.

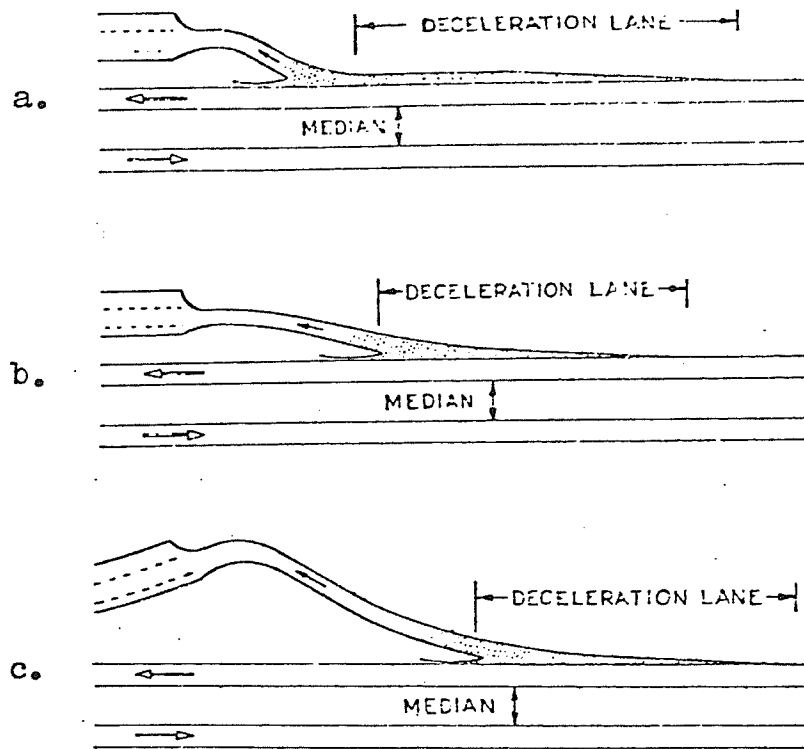
In comparison, an acceleration lane with a continuous taper, as shown in Figure 5b, desirably makes it possible to attain a greater speed before reaching the merging end. However, its drawback is a shorter merging distance.

In these Figure 4 and 5 designs of roadways leaving and entering the through traffic lanes, the lengths of the decelerating and accelerating lanes should be adjusted for the highway design speed and grade as shown in Tables 1 and 2 respectively.¹

¹ AASHO, A Policy on Geometric Design of Rural Highways, pp. 351-352.

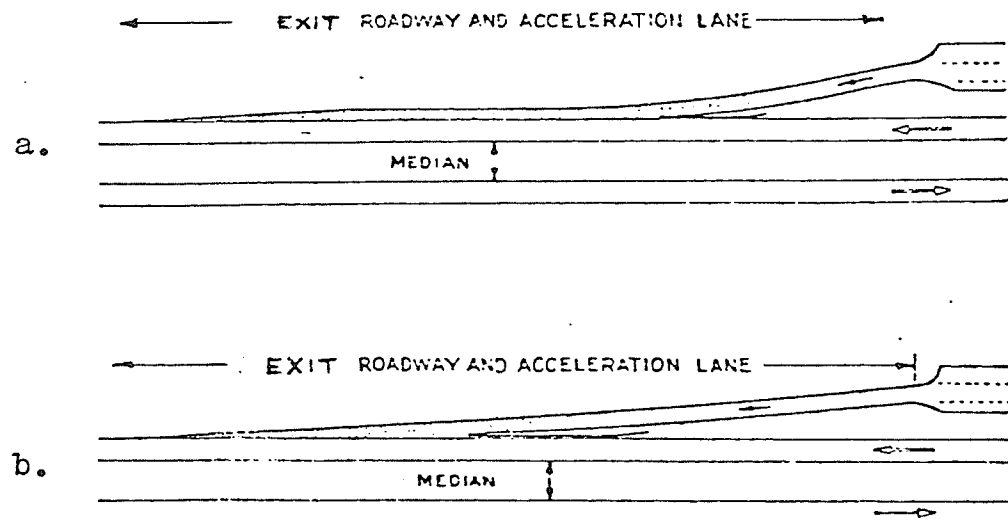
FACILITIES FOR ENTERING A WAYSIDE PARK

FIGURE 4



FACILITIES FOR LEAVING A WAYSIDE PARK

FIGURE 5



Parking Facilities

The ratio of parking spaces for passenger cars to trucks should depend on the class of traffic, the type of vehicle, and the location of the wayside park. For example, a highway may traverse an area that has special recreational, scenic, historical or other interest. A large part of the land may be conserved or developed in a manner that attracts many recreational travellers. In this case, there may be a very high ratio of parking spaces for passenger cars and recreational vehicles (travel-trailer, camping or tent trailer, motor home, etc.) to trucks and truck trailers.

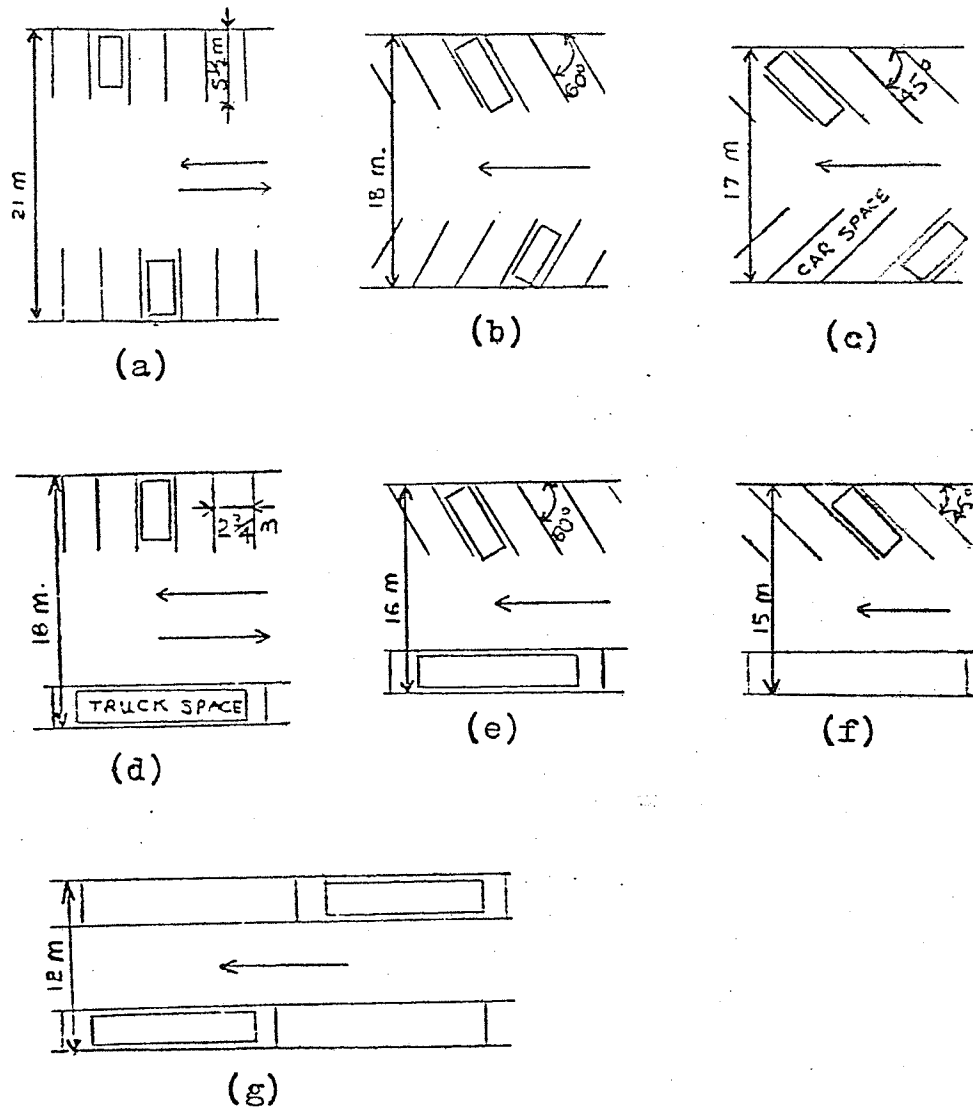
Conversely, a highway may traverse an area that lacks scenic qualities and any direct recreational, historic, or other appeal. Its major function may be to move commercial traffic directly and quickly from one location to another. Under such circumstances the ratio of parking spaces may be heavily in favor of trucks.

Suggested dimensions for various parking space arrangements are shown in Figure 6. Parking stalls perpendicular to the traffic lane (see Figure 6a) should only be used if a wayside park is designed for two-way traffic. For one-way traffic, offset parking stalls, as illustrated in Figures 6b and 6c, would be more practical and easier to manoeuver. The angle of parking can range from 30° to 60° depending on the available area layout.

Where the right-of-way is relatively narrow or where other site conditions influence the design criteria, the parking area may be elongated, with parking for trucks parallel to the main travel way (Figure 6g). Car parking may be in the same parking area and may be at right angle

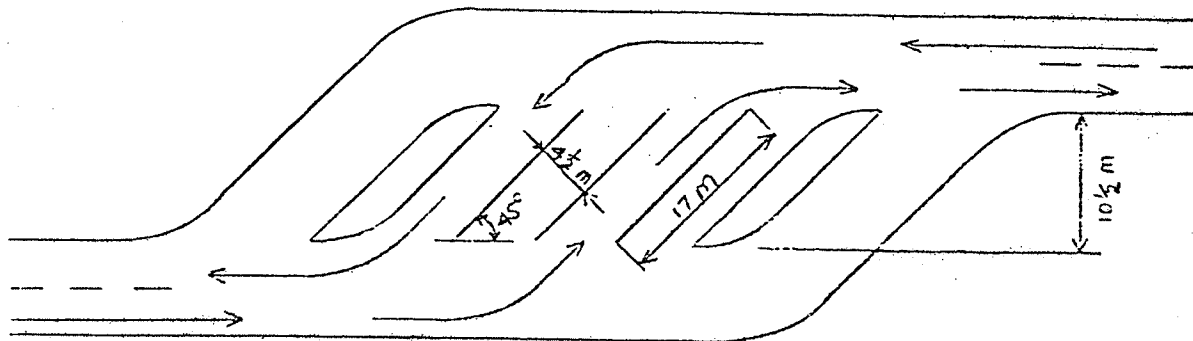
DESIGNS OF PARKING SPACES

FIGURE 6



DESIGN OF PULL-THROUGH PARKING

FIGURE 7



(Figure 6d), diagonal (Figures 6e and 6f), or parallel.

Parallel parking is also often utilized on a wayside park loop, removed from the main parking area where there may be picnic tables nearby.

A summary of the different parking space arrangements illustrated in Figure 6, appears in the accompanying table. The tabulations are based on an allotment of a $2\frac{3}{4}$ meters x $5\frac{1}{2}$ meters (9 ft. x 18 ft.) space for passenger cars and 3 meters x 15 meters (10 ft. x 50 ft.) space for trucks. This summary should guide the selection of a suitable angle of parking as it indicates for each case, the total width of the parking area required and the number of vehicles that can be accommodated per 30 linear meters (100 linear ft.)

SUMMARY OF PARKING SPACE ARRANGEMENTS
(Refer to Figure 6)

Diagram	Central Roadway	Type of Vehicle and Angle of Parking		Total Width of Parking Area Meters (ft.)	Number of Vehicles per 30 linear meters (100 linear ft.)	
		Left	Right		Left	Right
a	Two-way	Cars - 90°	Cars - 90°	21 m. (70 ft.)	11	11
b	One-way	Cars - 60°	Cars - 60°	18 m. (60 ft.)	9	9
c	One-way	Cars 45°	Cars - 45°	17 m. (56 ft.)	8	8
d	Two-way	Trucks-parallel	Cars - 90°	18 m (60 ft.)	2	11
e	One-way	Trucks-parallel	Cars - 60°	16 m. (52 ft.)	2	9
f.	One-way	Trucks-parallel	Cars - 45°	15 m. (50 ft.)	2	8
g	One-way	Trucks-parallel	Trucks-parallel	12 m. (40 ft.)	2	2

If a wayside park is expected to accommodate several truck - semitrailers or truck - trailer units using the area at the same time, consideration should be given to an angle-parking arrangement of the pull-through type, as shown in Figure 7. In this way, these vehicles won't have to back up in order to exit from the wayside parks. This parking space arrangement between the two roadways facilitates traffic circulation. The dimensions shown in Figure 7 are suggested for 45° angle parking for trucks (30° or 60° angle parking may also be used depending on how the stalls fit into the overall loop geometry). Each of these parking spaces could be used as well by two passenger cars. It should be noted that this parking arrangement requires relatively larger paved areas in comparison with parallel parking for trucks as shown in Figure 6g).

An attempt should be made wherever possible to provide parking spaces and to design wayside park traffic lanes and curves to accommodate any type or size of road vehicle.

Parking spaces should be marked by pavement striping wherever possible to encourage orderly parking and the best possible use of the available space. Moreover, parking spaces should preferably be level or on a slight downgrade for vehicles leaving the parking area especially trucks.

IV. ESSENTIALS FOR SAFE, CONVENIENT, AND SANITARY USE BY THE TRAVELLING PUBLIC

Water Supply

It is not always possible or feasible to connect wayside park sites to municipal water supply systems. In such cases wells are generally necessary to supply the wayside park with water. If a well

has a low yield rate in comparison to the demand, consideration should be given to include a storage tank in the water supply system. A storage tank should be of sufficient size to be capable of supplying the wayside park for at least a day, with the well pumps out of operation. To achieve this, it is imperative that the designer be able to make a reasonably accurate calculation of the anticipated peak-day water demand.

Experience in the United States indicate that a design rate of 5 gallons (U.S.) of potable water for each person utilizing the rest room facilities, is quite adequate in meeting minimum health standards.¹ A recreational vehicle sanitary facility would require additional potable water. A recreational vehicle of the travel-trailer type, requires an average of 30 gallons (U.S.) of water when refilling its water storage tanks and when flusing sewage.² Estimates of the amount of water provided for general use around the wayside park should also be incorporated into the overall water demand calculation.

To reduce costs, consideration should be given to using untreated water for sprinkler systems (especially if large areas need irrigation), as well as holding tank dumping facilities.

Sewage Treatment

The selection of the type of sewage disposal system will depend on several factors including the anticipated quantity of raw sewage to be treated, water table, percolation of the soil, availability of land, and esthetic conditions.

Consideration should be given to the following sewage treatment systems:

¹ Wyoming Highway Department, Statewide Rest Area Study, p. 25.

² Ibid., p. 25.

1. Joining into a municipal sewer system. This is most advantageous type of design as it requires merely the sewer pipe and manholes to connect into an existing sewerline or facility. The prime advantage is the minimal maintenance needed.

2. Sewage treatment plant which may include a polishing pond. This type of system may be appropriate in locations where an existing municipal system is not available and where water and electricity are present or can be brought into the location. In various wayside parks in the United States, this system involves an extended aeration sewage treatment process. Whereas this system is effective from the standpoint of sewage treatment, it is costly and requires an operator to run and maintain the plant during operation.

The effluent can be discharged into streams or other water bodies provided it meets health requirements. However with today's growing concern over pollution, policies may emerge requiring stricter control over the quality of effluent or total prohibition of discharge of effluent.

To reduce or eliminate water pollution, the polishing pond may be required for an additional treatment of the effluent.

3. Septic tank with underground drain field. This is a very popular type of sewage treatment. However it has several disadvantages consisting of very little or no biological treatment of the sewage, periodical pumping out and disposal of the solids, plugging up the drain field with solids, and the inability to function when the water table is high in the area.

The main advantages of this type of system are that it is cheaper to install than the extended aeration treatment plant, it needs little or no maintenance when functioning correctly, and it is hidden

from view resulting in no vandalism or aesthetic deterioration.

4. A sewage lagoon. This type of system which is also called waste stabilization ponds, is inexpensive to install and does not require significant maintenance. However a major drawback to this type of system is the amount of area required for the ponds (perhaps one or two acres). Moreover there are disadvantages in that the ponds may produce offensive odors (this problem however can usually be overcome with proper location of the ponds), require fencing, could lead to contamination of the ground water depending on location, may need weed and pest control, and possibly maintenance to control erosion.

5. Pit toilet installation. This is often used in smaller wayside parks without an adequate water supply. Its drawbacks are offensive odor, flies, the necessity of periodic pumping of the pit, and the general difficulty of keeping it clean and sanitary. The chief advantage is the minimal construction cost of this type of installation.

Regardless of the type of sewage disposal system being utilized, the planner must be able to determine with accuracy, the anticipated amount of raw sewage to be treated. This figure should be assumed to be the potable water demand figure (as outlined in the section on Water Supply), plus the amount of water and sewage pumped at the travel-trailer sanitary station. (Research by the United States Federal Highway Administration indicates that on the average 35 gallons (U.S.) of sewage is dumped by one travel-trailer vehicle).

A sewage disposal which could be of great value to a wayside park network is the portable rest room facility. This facility could be used under the following circumstances:

(a) During peak demand, wayside park usage may exceed the

capacity of existing sanitary facilities. Portable sanitary facilities could be brought in to supplement existing facilities until such time that the latter can be altered or expanded.

- (b) In case of emergency breakdown of an existing water supply or sewage treatment system.
- (c) As temporary rest rooms at proposed wayside parks where construction has to proceed in stages.

It should be emphasized that regardless of the circumstances, the availability of portable sanitary facilities would undoubtedly add the necessary flexibility for a complete wayside park network.

These portable units could be placed in trailers and pulled from one location to another as required, or they can be stored in maintenance yards when not being used. Manufacturers of this type of facility, have come up with a very effective design: The toilets for these units require a minimal amount of water to flush and involve chemical treatment. The solids are removed from the liquid sewage, treated and stored in a holding tank. The liquid is chemically treated and recycled. An important advantage is that this self-contained unit eliminates a very significant quantity of raw sewage that is generated for example by the conventional toilet (Whereas 1150 uses of one of these portable toilets generates 71 gallons (U.S.) of sewage before it has to be pumped out, the same number of uses of a conventional toilet will generate approximately 4370 gallons (U.S.) of sewage.¹) But while this self contained unit is able to cut down on the quantity of sewage and consequently

¹ Ibid., p. 29.

of water supply, the sewage is much more concentrated. This sewage can be pumped into a tank or trailer holding tank, and transported to a complete wayside park or nearby town to be pumped into the sewage treatment plant. Whereas massive loadings of the concentrated sewage and added chemicals could have the effect of reduced quality on a small sewage treatment facility, research has shown that addition of sewage in controlled rates would have negligible effect.¹

Also available is a similar unit built to replace pit toilets serving wayside parks. This is a complete unit constructed with its own shelter and therefore it requires some method of anchoring to the base to alleviate vandalism. As a trailer comfort station it could include a utility room between the women's and men's restroom. Or the unit could be simply a free standing chemical toilet.

Buildings and Related Features for the Physically Handicapped

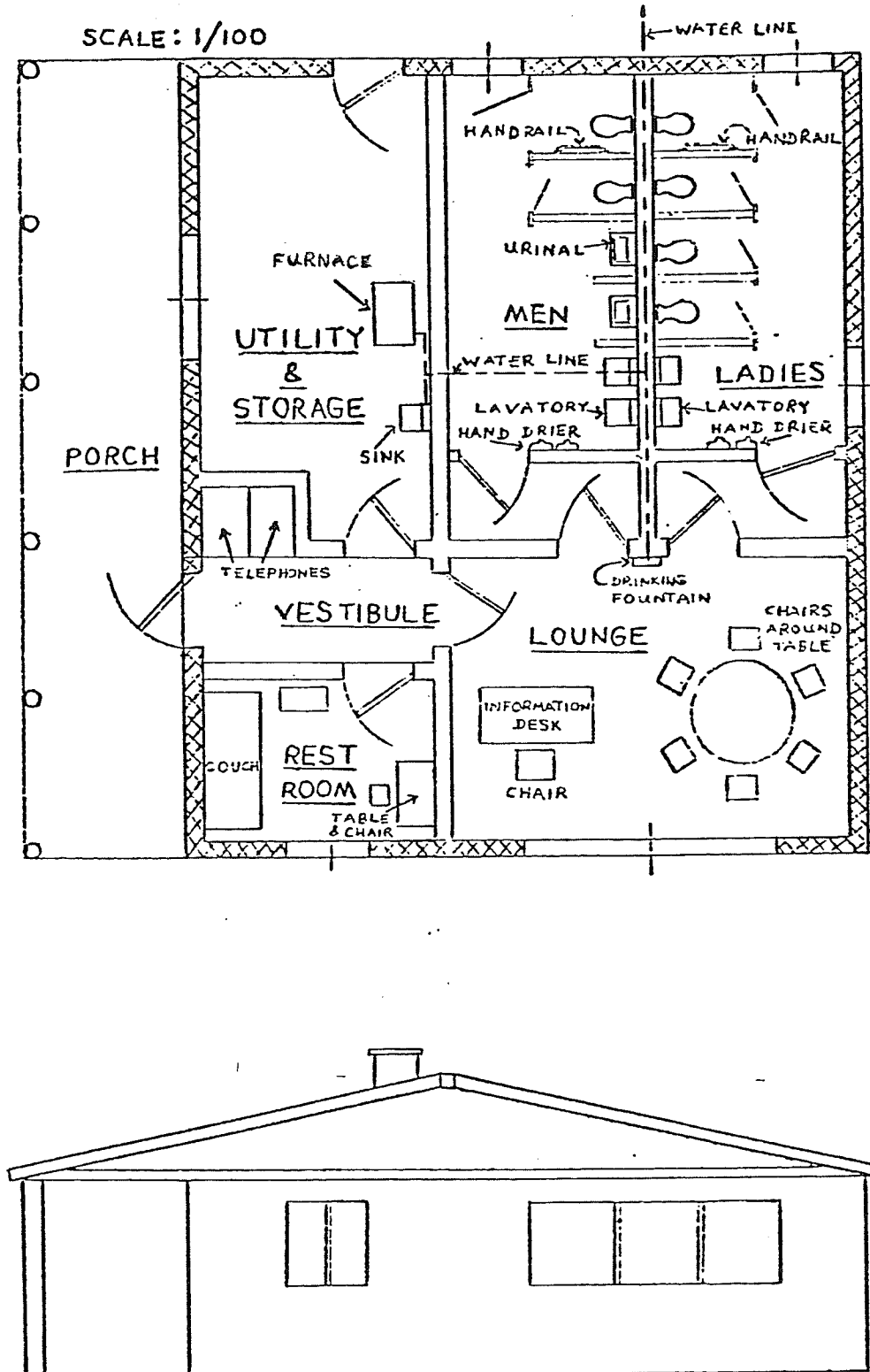
The greater use of wayside parks has dictated the need for water-flush toilets. Past experience has shown that toilets can only be omitted from wayside parks at the risk of the nuisance of having adjacent land used for sanitary purposes.

An example of a comfort station with added amenities, is given in Figure 8. It should be noted however that the actual size and type of facilities required, should be based on a wayside park usage study for the particular area concerned, as discussed in the Survey Chapter. The building is 12 meters x 12 meters (40 ft. x 40 ft.) and consists of men's and women's toilets, a rest room, storage and utility room, lounge, vestibule, and a porch. The women's washroom has four water closets, two lavatories with hot and cold water, two hand dryers,

¹ Ibid., p. 29.

PLAN AND ELEVATION
FOR
COMFORT STATION

FIGURE 8



dispenser, and purse hooks. The men's washroom contains two water closets, two urinals, two lavatories with hot and cold water, and two hand dryers. The rest room has a couch (whereas this is necessary in case of sudden illness on the road, it is often overlooked by architects), and a table and chair with a shelf on top. The lounge contains an information desk to be used by an attendant, several chairs around a table, a display case, and a drinking fountain. The utility room contains a furnace and ventilating fan, water heater, water pressure tank, a water control panel, a utility sink, as well as miscellaneous electrical controls and storage of supplies. Two telephones are located beside the vestibule. The porch contains chairs but this seating should be omitted if the porch is less than two meters wide. The porch could also be used for public information purposes (panels could be mounted on the wall to conserve space).

Aside from its basic function in providing toilet facilities and water, such a building is important in providing shelter in case of adverse weather conditions or an emergency (the porch may do good).

The men's and women's washrooms are located next to each other to allow a single water line to serve both washrooms for economy.

To enable the physically handicapped to use the toilet facility without undue inconvenience, one toilet compartment in each washroom features a wider stall (117 cm. or 3 ft. 10 inches), wider door which opens out (minimum recommended width is 82 cm. or 32 inches), and a handrail. The extra width of the vestibule conforms to the minimum accepted standard for the handicapped of 60 inches or 153 cm.

Mounting heights of toilet fixtures, drinking fountains, hand dryers, or other related building equipment, should also conform to

accepted standards for the handicapped. At specifically reserved parking stalls, ramps are needed to provide suitable access to the building. This involves eliminating steps on walkways, and providing depressed curbs (see Figure 9).

The American Standards Association's ASA Standard A117.1 - 1961, "Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped",¹ is a comprehensive standard which includes much of the vital data required by architects to meet the basic needs of the physically handicapped. Some details of this standard, which are particularly relevant to wayside park development, appear in Appendix A.

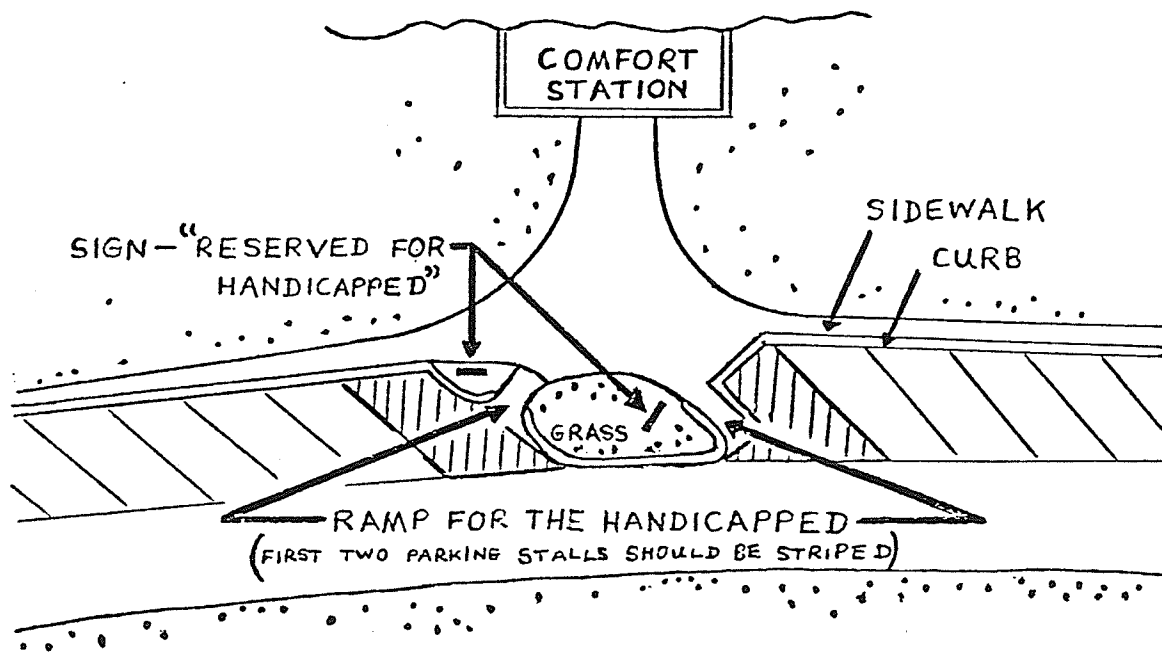
The location of the building should be governed by the particular design of the parking area. It is highly recommended that the building be located in the general "center of population" and that it be easily accessible from the parking area(s). In the case of toilets without sanitary sewers, experience has shown that they must also be placed at a safe distance from the water supply. Moreover, where toilets are without running water or where a number of multiple toilets are needed as in a large site, the toilets may well be separate structures for men and women. Separate pit toilets can be dispersed even in a small wayside park. However, where the toilets feature running water, it is more economical to combine the toilets for both men and women in a single building.

For reasons discussed in the section on Sewage Treatment, pit toilet installations should be avoided if at all possible. Unless traffic density is light, and there is only occasional use of the

¹ Published by the National Society for Crippled Children and Adults, Inc., 2023 N. Ogden Ave., Chicago, Illinois. 60612.

RAMPS AT RESERVED PARKING
FOR
PHYSICALLY HANDICAPPED

FIGURE 9



facility mainly on weekends, installation of a comfort station can be justified.

It is important that materials and fixtures used in the building be functional, vandal resistant, simple to operate, and inexpensive to repair or replace. For example, the interior of a very simple toilet structure could be designed with smooth concrete floor, central floor drains, and rounded corners to permit easy and quick flushing of the whole interior with a hose. Another effective trick of toilet design is to make items such as ceiling and wall lights in such a way that they can be fastened into position from the back side of a partition wall or ceiling, thereby reducing the possibility of removal from the toilet room side. If possible, windows in toilets should be above average reach. Consideration should also be given to using screens placed on the outside of the windows, or wire-reinforced glass in windows to further aid in preventing breakages.

Since vandalism is often the most critical problem at remote unmanned locations, it should be given the highest priority in the design of all appurtenances at such comfort stations. This problem may even preclude the use of flush toilets. Furthermore, it may be necessary to specify a metal building to prevent the arson problem. This for instance proved necessary in the State of Illinois due to fires which completely destroyed comfort stations at five different locations.¹ The design of a metal building which is painted brown, closely resembles a wooden building from a distance and appears quite compatible with its surroundings as the State of Illinois reports.

¹ Ohio Dept. of Highways and Ohio State University, Thirtieth Short Course on Roadside Development, p. 126.

Further detail in building design appear in Appendix B.

Picnic Tables

The utilization of picnic tables is the largest wayside park feature next to restroom facilities. In fact, people often tend to judge a major wayside park by the adequacy of picnic tables, not to overlook that for some, eating on the grass is more pleasurable. It is therefore necessary to give special consideration for determining a suitable number of picnic tables. However it should be noted that unlike other major wayside park features, the number of tables need not be designed for a 15 to 20 year projection of usage of wayside parks, but rather for meeting the present anticipated level of usage. The reason being that tables could simply be added with increasing demand. The number of tables should be determined by the size of the wayside park, topography of the site, parking space capacity, park usage studies of the demand for this facility in the particular locality concerned, etc. Generally, a ratio of one picnic table for every three vehicles is recommended.

Tables should be located where they can be screened from toilet facilities, traffic noise and other disturbances, by topography or by existing or planted growth. One argument against placing picnic tables in small turnouts is the lack of protection against traffic noise and dust. Shade is desirable where some picnic tables are located. Pole shelter may be required in dry or treeless regions. Tables should be kept a reasonable distance apart to allow some privacy and sufficient room for circulation. It is important to consider table location in relation to fireplaces in order to avoid smoke and dirt blown by the prevailing wind.

Litter containers should be conveniently located in relation to picnic tables and the parking spaces so as to encourage their use. Generally, one litter container should be provided for about every three picnic tables, and as needed to serve the parking area.

A discussion of the types of table and benches and materials that can be used appears in Appendix C.

Fireplaces

Fireplaces should be featured in wayside parks for that North American institution called the picnic lunch. Provision of outdoor fireplaces is necessary, so that if the traveller needs to start a fire, it will not spread to the woodland. In fact there are those who claim that the need for wayside parks largely arose from the necessity of controlling fires used by the travelling public.

The emphasis given to fireplaces should depend on the locality since each geographic area has its own particular problems. For example, in a farming area there may not be the forest-fire hazard that exists in other regions. Under such circumstances, outdoor fireplaces may be de-emphasized in the development of wayside parks. By the same token fireplaces may be absolutely essential on highways through forested Provincial or Federal parklands.

Consideration must also be given to the problem of supplying firewood. Whereas some could be obtained from natural windfall, this may not be enough and the roadside picnicker may take the matter into his own hands to the detriment of the natural woods surrounding the wayside park. This is something which should be closely watched, but it can nevertheless be overcome if maintenance people would pile cordwood at these picnic areas, salvaged from clean up operations along highways.

In addition, an attempt should be made to persuade nearby service stations to stock charcoal or wood for sale.

In locating fireplaces, it is necessary to keep them away from desirable trees. Moreover, fireplaces should be located so as to prevent smoke or ashes blown by the prevailing wind, from crossing picnic tables and benches. Around the fireplace, it is also desirable or perhaps necessary to provide areas of crushed stone or clean gravel as a precautionary measure against the spread of fires.

The number of fireplaces should be proportional to the size of the area and the number of people to be served. It is preferable to provide one fireplace for every two table and bench units serving an average of four to six persons.

Further details on fireplaces, appear in Appendix D.

Signs

The design of signs should be based on the premise that signing is primarily for the benefit and direction of motorists who are unfamiliar with the particular highway. Signs should have the following features:

1. They must convey messages that are carefully selected and designed for easy reading.
2. They must stand out and be effectively displayed so as to enable motorists to react quickly and properly to the situation encountered.

Variations in wayside park signing from one Province to another causes confusion to the motoring public. It is therefore essential that a system of uniform signing including a characteristic uniform shape, be adopted and universally used throughout Canada, which is not the case so far.

Sign installations are an integral component of a highway facility and therefore must be planned simultaneously with the development of location and design of wayside parks. In fact, plans for signing should be analyzed during the preliminary stages of design since "neglect of the correlation of signing and design can result in physical layouts that are plagued with chronic operating difficulties."¹

The cost of an up-to-date effective signing system is only a small fraction of the total cost of a wayside park, and provisions for sign installations corresponding to superior traffic services should always be a primary objective. Differences in cost between mediocre and excellent signs are generally negligible.

Wayside park signs and markers are used for various purposes such as:

1. Advance warning signs, letting the motorist know when he is within say 5 kilometers and 2 kilometers of a site.
2. Signs at main entrances to wayside parks.
3. Historical signs and markers, attracting the motorist's attention to interesting historical facts concerning the site. Care should be taken not to block the feature (say, a sculpture) being interpreted by the sign.
4. Incidental directional markers or signs to guide the visitor to the facilities and features of the wayside park. These smaller signs should be as simple, legible, and unobtrusive as possible.
5. Printed or typed notices on bulletin boards, for guiding wayside park users.

¹ AASHO, Manual for Signing and Pavement Marking of the National System of Interstate and Defense Highways, p. 7.

The common error of oversigning found on many highways frequently involves numerous signs which are too small or too poorly designed or placed to achieve the desired purpose. This "incomprehensible sign maze must be avoided."¹ Visual considerations in signing should take into account that a motorist on the highway requires 3/10 of a second to focus his eyes on an object. This means that as a motorist increases his speed, he has to concentrate his vision on less and less, further and further away. For various speeds, the cone of vision and the point on which the motorist focuses his attention is shown as follows:

Speed in KM/H	(MPH)	Cone of Vision	Point on which the Motorist Focuses His Attention
40	(25)	100°	183 meters (600 ft.)
72	(45)	65°	366 meters (1200 ft.)
97	(60)	40°	488-610 meters (1600-2000 ft.)

It should therefore be noted that a sign situated for example at point P in Figure 10, will be seen in some detail by a motorist travelling at 64 KM/H (40 MPH), but will be hardly recognized by one travelling over 97 KM/H (60 MPH).²

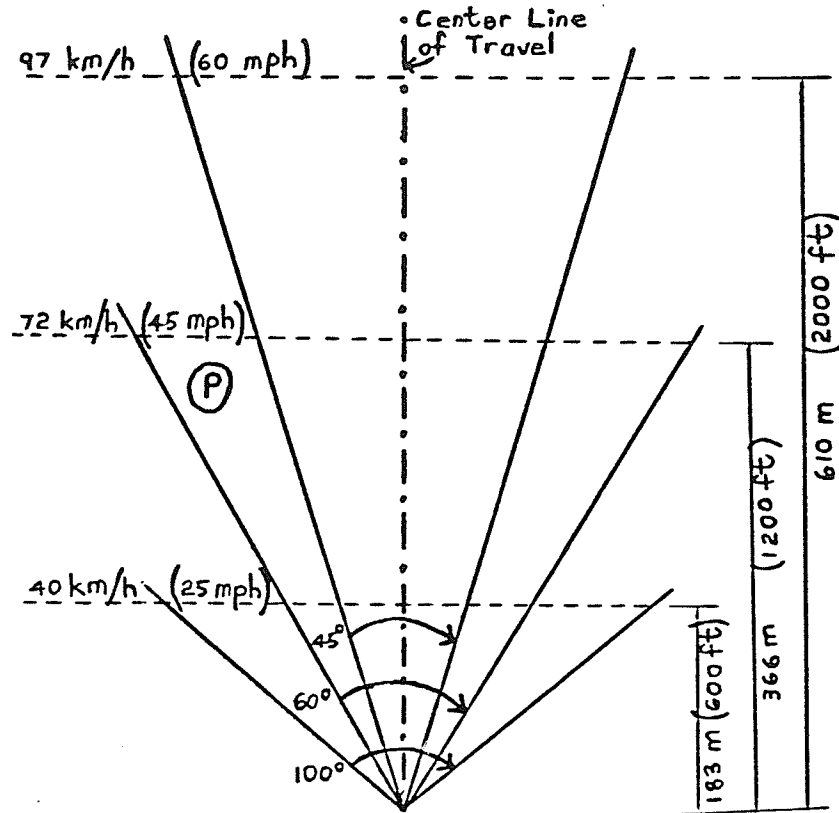
Wayside park signs, like other highway signs must therefore be sufficiently large to be read from approaching vehicles in scale with the highway's design speed. Moreover, it should be noted that the number of events that a driver can assimilate at any one time depends

¹ Ibid., p. 8.

² P. Connolly, "Visual Considerations - Man, The Vehicle, and The Highway," in Design Guidelines for Forest Management, p. 149.

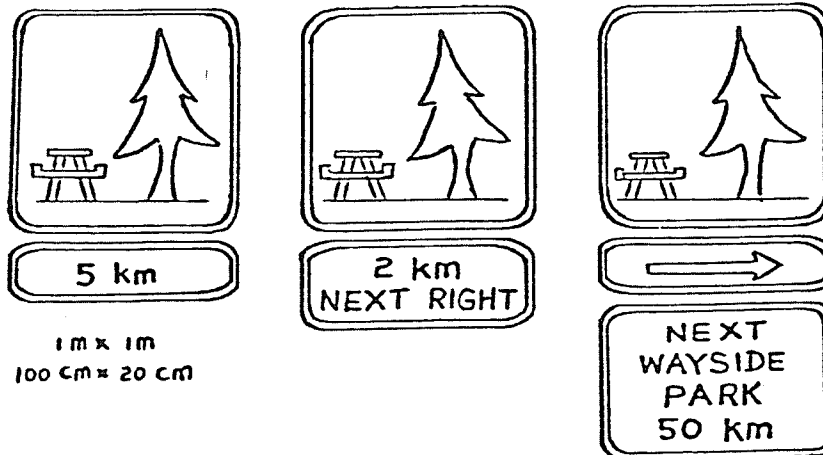
THE EFFECT OF AN INCREASE IN SPEED OF TRAVEL
ON THE MOTORIST'S CONE OF VISION
AND THE POINT ON WHICH HE FOCUSES HIS ATTENTION

FIGURE 10



ADVANCE SIGNING FOR WAYSIDE PARKS

FIGURE 11



on the speed of travel. More specifically, research has shown that "for every 27 meters (88 feet) a driver travels at 97 km/hr. (60 mph), he can handle two events."¹ The implication of this is that messages concerning wayside parks, like other highway messages should use a minimum number of signs and words to convey a message. A more detailed description may be appropriate once the motorist has stopped.

Figure 11 shows advance signs for locations which are sufficiently far from the wayside park site, to allow the motorist to read, assimilate, and stop if desired.

The tree and picnic table shown on the sign are symbolic not only of shade and rest, but also of a cordial invitation to the public to use the park. To eliminate confusion between wayside stops and camping areas, signs for the latter should use symbols for a tent or trailer. Symbols are preferable to word messages because of the confusion in the various names given to wayside stops.

The measurements indicated above should be the minimum sizes of wayside park signs for highways. These sizes are necessary in order that a wayside park sign will be recognized by an approaching motorist from a distance of at least 50 meters. A sign indicating a wayside park should be placed no closer than 100 meters from the entrance road. The maximum distance from the entrance road should be based on the particular highway situation (i.e. volume of traffic, type of road, sight distance, etc.) However, a site with a deceleration lane should have a wayside park sign reading "Keep Right" with an arrow, at the beginning of the deceleration lane.

¹ Ontario Ministry of Natural Resources, Design Guidelines for Forest Management, p. 149.

As a rule wayside park signs should be located on the right side of the highway, where the motorist is looking for them. However, on wide expressways or where space is not available, an overhead sign may be necessary. A wayside park sign in any other location ordinarily should be considered only as a supplementary to signs in the normal locations. On a multi-lane highway where traffic in the right-hand lane may block the view to the right, it is often helpful to locate a supplementary sign on the left of the roadway.¹ Signs should be located where they will not obscure each other or will be hidden from view by other roadside objects.

Information on wayside park sign color, borders, reflectorization, and orientation, is given in Appendix E.

Communications

A communication system may involve telephones, radios, radio-telephones, or alarms for police protection, operations, and maintenance needs.

A telephone which is only connected to an emergency switchboard or police station, is a type of public utility that could certainly be included in a wayside park. However, general public telephones are private utilities which may not be allowed on a major highway. The use of roadside telephones requires a parking space, which along a major highway, should be separated from the through traffic and provided with acceleration and deceleration lanes. The costs of such highway appurtenances are not justified by the general use of the telephone, despite it being a facility for the convenience of a few motorists. It should there-

¹ United States Dept. of Transportation, F.H.W.A., Manual on Uniform Traffic Control Devices, p. 19.

fore be noted that installation of telephones, if allowed, could best be achieved within a wayside park site.

A pay telephone service may be provided at wayside parks where the phone company is willing to install and operate it at no cost to the Province. If the wayside park is a considerable distance from a telephone service line, the provincial highway agency may be requested to pay the cost of installing a line to the site.

Wayside parks at interchanges may be ideal locations for telephone installations, where the required utility lines are located along the crossroad.

Suitable locations for telephones may be within the comfort station where it would be more sheltered, or on the outside walls of such buildings. Another alternative is to place them in booths located along sidewalks near the parking area and the comfort station where they will be most easily accessible to the public. Booths should preferably be of the standard enclosed type.

Consideration should also be given to providing wayside parks (depending on the level of service which they provide) with radio service between the caretaker's office and mobile highway maintenance units, regional or central headquarters, and highway police units.

V. OTHER FEATURES

Landscaping

Landscaping should purposely be kept simple limited perhaps to topsoiling in the picnic area, seeding, and planting of shade trees. Planting to provide visual separation from the adjacent properties may be desirable at certain sites. Moreover plantings could serve to partially screen toilets or a storage shed, or to provide protection from

the wind. In a large truck parking area, planting trees in the island or islands will break up the expanse of paving and enhance the appearance of the area. Major trees requiring little attention after planting may also be necessary in the median separating the highway from the parking area.

Provision of Caretaker's Residence at Wayside Park

Construction of a separate residence for the use of the custodian may be justified at some wayside parks such as those which are remote and isolated. The provision of a caretaker's residence permits a caretaker to provide constant supervision of the wayside park. In this way, crime and vandalism should be reduced, the travelling public would be assured of better service, and the cost of maintenance may be reduced in some cases.¹

The house should be located within sight of the comfort station and convenience facilities provided at the wayside park, but at a sufficient distance away so that people using the facilities would not interfere with the caretaker's privacy. Consideration should be given to erecting a fence for more adequate separation.

For the caretaker's use, a private drive, preferably with a gate to discourage public access, should form a connection with the parking area or access to ramps.

Lighting

Wherever possible, interior and exterior lighting should be provided to permit 24 hour use of the wayside park and also discourage

¹ AASHO, A Guide on Safety Rest Areas for the National System of Interstate and Defense Highways, p. 11.

vandalism. Such lighting may be automatically activated by a light sensitive photoelectric eye.

Playground Equipment

It is important to provide some playground equipment to allow people, mostly children, a means to release their energy accumulated from long hours of travel. This results in a more enjoyable and safe journey.

Pet Exercise Area

Pet exercise areas could serve to minimize the problem of animal wastes spread throughout the area. These exercise areas should be provided at wayside parks where space is not a problem.

VI. EXAMPLES OF WAYSIDE PARK DESIGN

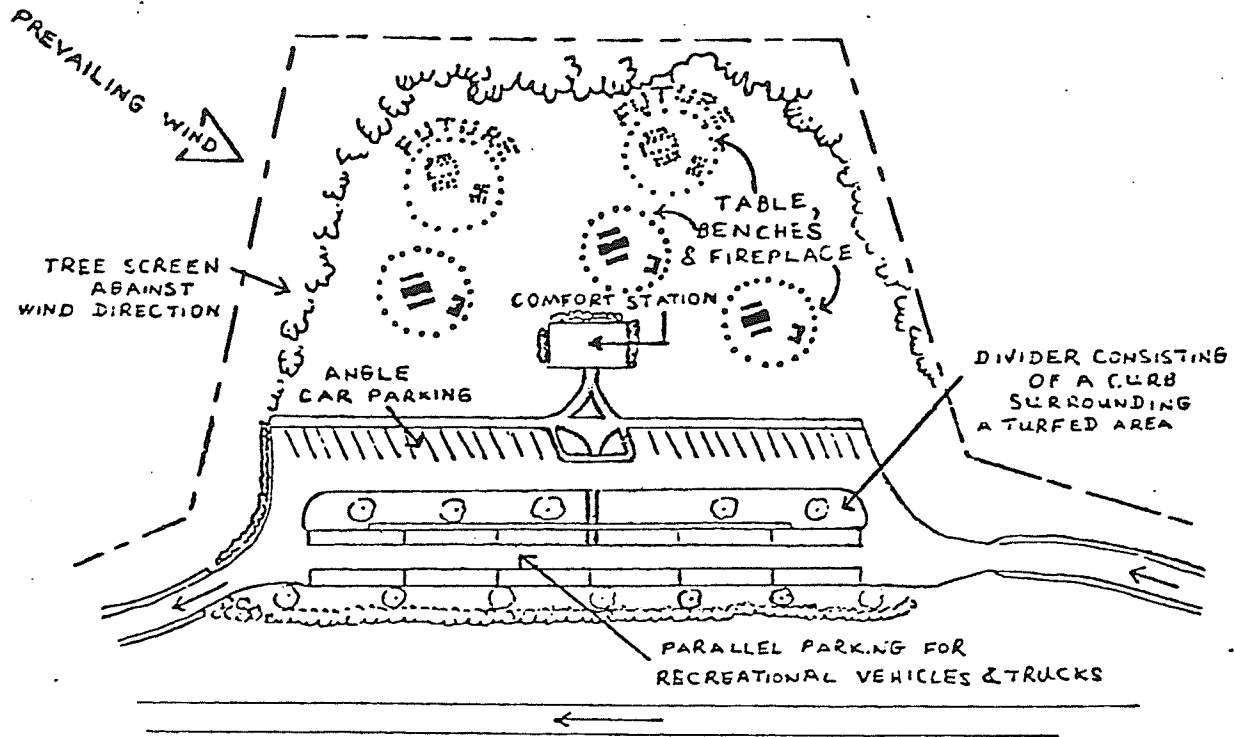
Example - A Major Highway Site

Separate parking for cars and trucks, as shown in Figure 12, would be appropriate at locations where a relatively large number of trucks would congregate. On radial highways entering metropolitan areas, or at points approximately halfway between cities, there is evidence that a large number of truck drivers pull off, on any available roadside space, for a waiting rest in order to arrive at their destination at the proper time of day. Moreover truck drivers like to stop at precisely the same location to exchange information. Thus there is a need for wayside park locations patterned for such truck stops.

In Figure 12, a centrally located comfort station features running water, flush toilets, and a lobby with sufficient space to permit a display of travel information. A buffer excludes access to the wayside park from adjacent property.

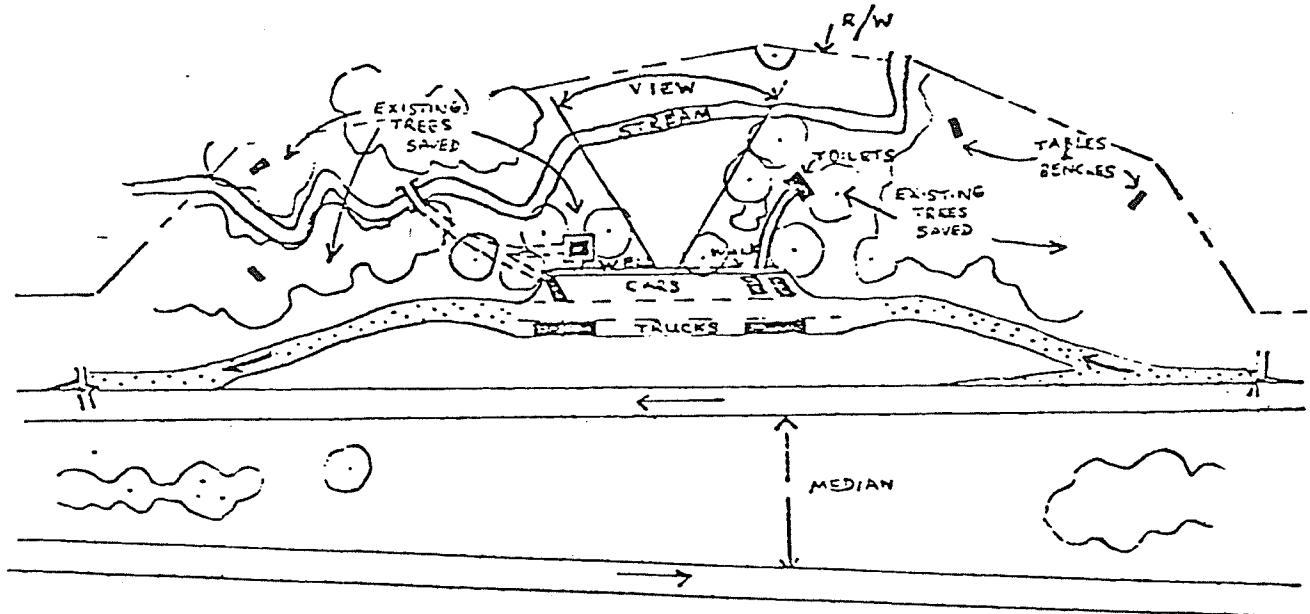
WAYSIDE PARK ON MAJOR HIGHWAY

FIGURE 12



WAYSIDE PARK IN SCENIC AREA

FIGURE 13



Example - In Scenic Area

Figure 13 shows a wayside park located to take advantage of groups of shade trees, a stream, and scenic view from the parking area.

A footbridge leads to the picnic tables and possible barbeque grills across the stream. The toilet is partially hidden behind trees. In addition, footwalks protect the grass and ground cover from damage by pedestrians, and they connect the various facilities - i.e. the parking area with the toilet and well.

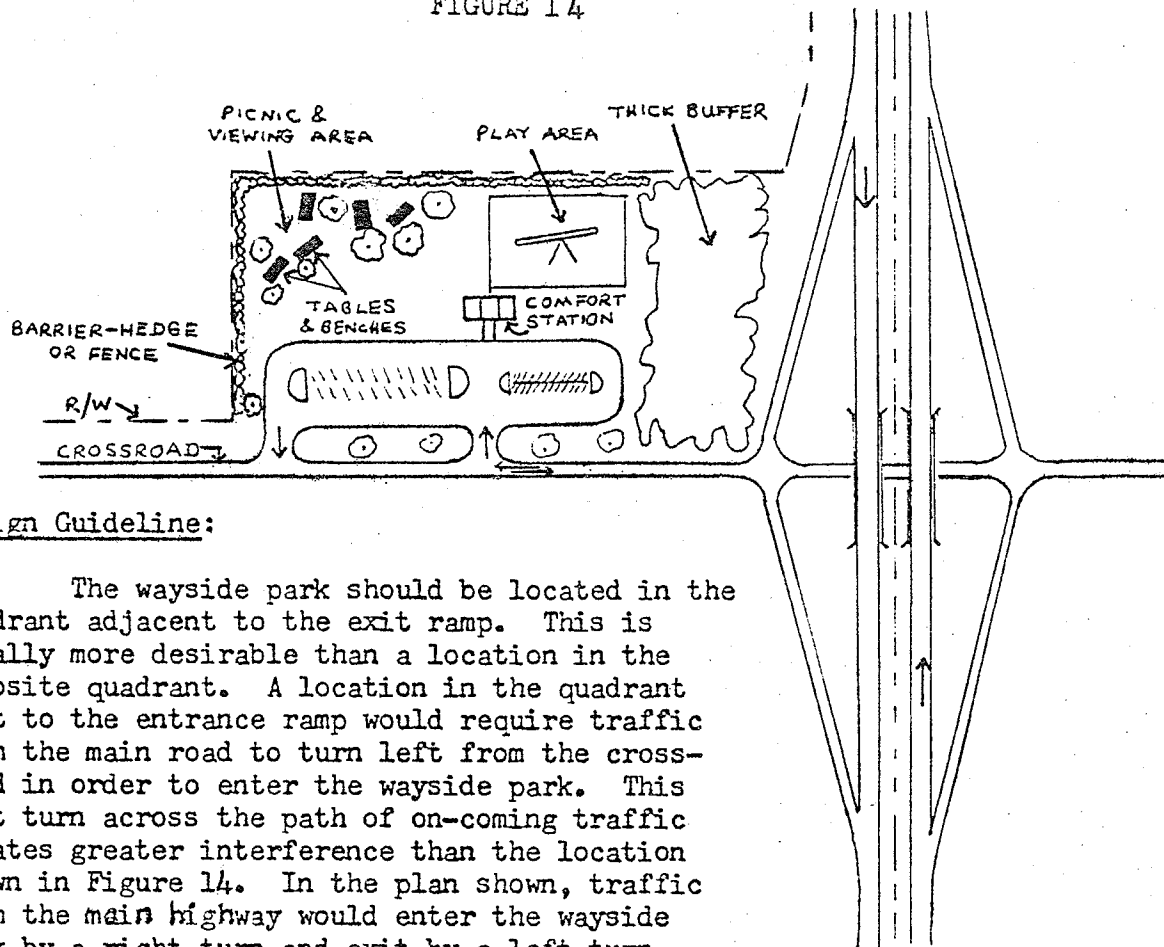
Example - At an Interchange

A wayside park location at a crossroad with low traffic volume, as shown in Figure 14, has the following advantages:

1. There is a saving in cost, since the interchange location eliminates the need to construct "on" and "off" access ramps, and also eliminates duplication of facilities necessary for opposing lanes of traffic.
2. Wayside park users at the interchange would often be near occupied areas including businesses or homes along the crossroad, thereby enabling them to obtain help when needed, which would come via the crossroad.
3. By virtue of its location near the crossroad, it is often possible and feasible to install a telephone at a wayside park at the interchange where the necessary utility lines are already located along the crossroad. Other public utilities such as electricity are also more likely to be available at the interchange.
4. Policing and maintenance problems would be minimized because of four-way accessibility.
5. Large amounts of land area are already available and underused.

WAYSIDE PARK DESIGN AT A RURAL INTERCHANGE

FIGURE 14



Design Guideline:

The wayside park should be located in the quadrant adjacent to the exit ramp. This is usually more desirable than a location in the opposite quadrant. A location in the quadrant next to the entrance ramp would require traffic from the main road to turn left from the crossroad in order to enter the wayside park. This left turn across the path of on-coming traffic creates greater interference than the location shown in Figure 14. In the plan shown, traffic from the main highway would enter the wayside park by a right turn and exit by a left turn from a stopped position at the entrance to the crossroad.

Features:

1. This single wayside park serves traffic in both directions along the highway and crossroad.
2. Benches and tables are placed as far away from noisy traffic as possible.
3. Play area is closer to main traffic.
4. Thick buffer is on the right to screen highway nuisance.
5. Fairly thin buffer strip between parking area and crossroad in order to leave as much quiet and scenic space deeper in behind the parking area.
6. A single building located reasonably near the parking area provides separate toilets for men and women. In comparison with separate buildings, this provides public convenience and simplifies sanitary maintenance. A tool storage room is located between the two toilets.
7. The right-of-way boundaries are protected by a barrier-hedge or fence.

The disadvantages of a wayside park location at an interchange are as follows:

1. Any additional entrance and exit connections, especially along ramps, may interfere and retard the normal traffic flow, thereby decreasing the effectiveness of the interchange areas. Accordingly, wayside parks should not be located where expected ramp traffic volume is high.
2. These locations often have noisy and busy traffic which could disturb wayside park users.
3. In order for a wayside park located at an interchange to be used effectively, extra signs must be provided, resulting in additional signing problems in areas which are already difficult to adequately sign. Moreover, it is necessary to indicate to drivers the way to proceed to the crossroad, or to return to the main highway.
4. The limited space between interchange roadways may not have the desirable speed - change distance to meet the standards normally used for design on major highways. The distance travelled along the exit ramp, may be considered to be a part of the deceleration distance, and a significant reduction in speed-change distance for acceleration may have to be tolerated.
5. Interchange locations also pose a minor inconvenience to the motorists - perhaps two to four minutes in terms of time necessary to reach the wayside park from the highway exit ramp or to return to the travelled way. However this is insignificant when put in perspective with other considerations.

VII. CONCLUSION

Wayside parks should be designed with emphasis on safety and withdrawal from high speed driving. Elements should tend to slow the pace of the motorist, physically and emotionally. The transition should lead to a passive environment. Conducive to this, are facilities for rest and comfort, walking, and picnicking.

If a wayside park is properly designed, it will operate in a safe manner with a minimum of supervision. This means that pavements have proper sight distances, entry and exit to the wayside on a major highway is via acceleration and deceleration lanes, walks and paths have easy grades, signs are provided as needed, etc.

CHAPTER FIVE

THE SURVEY

1. BACKGROUND AND OBJECTIVES

This study attempted to determine what role wayside park developments should play in providing routine stopping opportunities for the travelling public. The study centered on five Manitoba wayside parks west of Winnipeg (See Fig. 15): Norquay, Seton, Hargrave and Kirkella which are all located on the Trans-Canada Number One Highway, and Keyes wayside on Highway Number Four (Yellowhead route).

The major objective of this study, then, was to examine highway travel and stopping patterns. Such information is necessary for an evaluation of existing wayside parks in Manitoba, in terms of the functions they are presently serving and those which they should ideally serve. Specifically, the data obtained can be used to help answer three important questions:

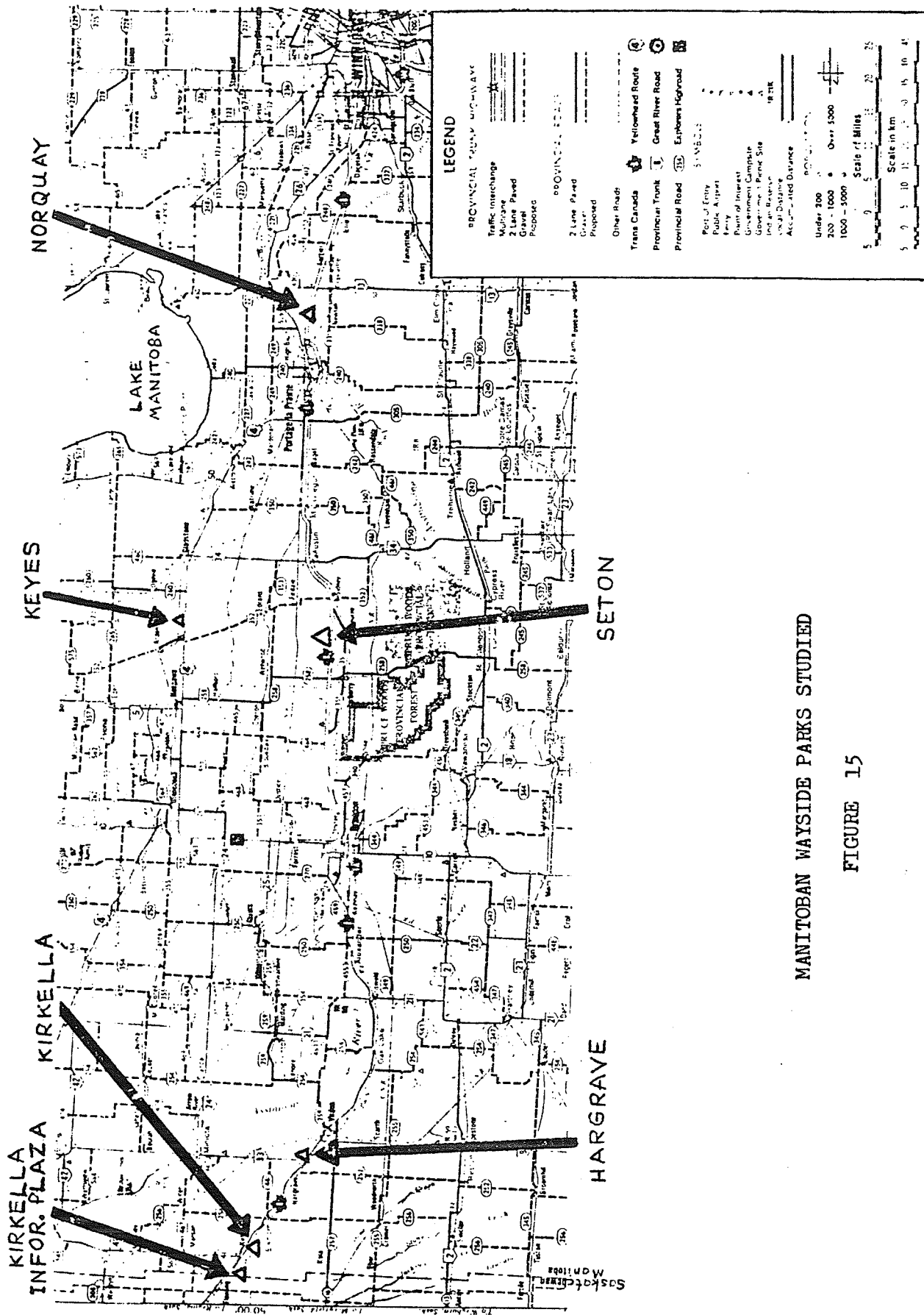
1. Are the existing wayside park facilities frequent enough on the routes studied?
2. Are the existing facilities adequate to meet the needs of the travelling public?
3. What types of facilities are needed?

The study consisted of three separate research phases:

1. a visual survey through the case study areas.
2. questionnaire conducted through personal interviews with wayside park users.
3. traffic counts to determine the average percent and types of highway traffic entering a wayside park.

1.1. A VISUAL SURVEY THROUGH THE CASE STUDY AREAS

The essence of a good wayside park lies in the orderly control of vehicles by appropriate barriers such as local timber, as shown in Figure



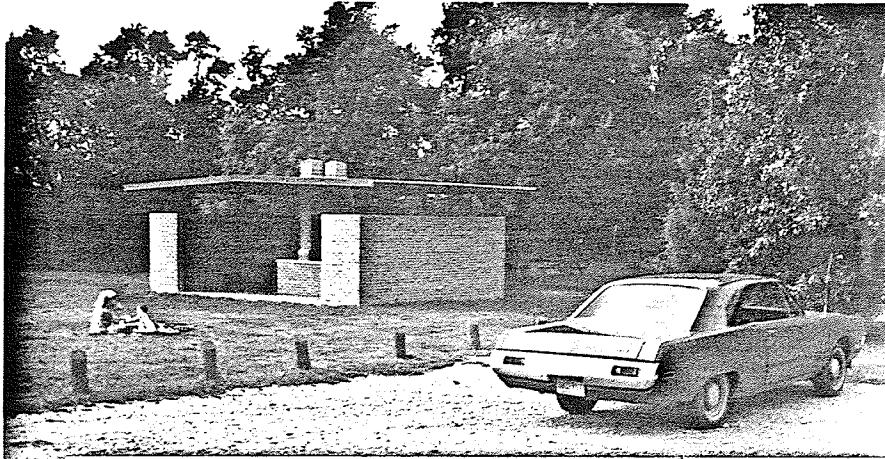
16a, (Hargrave wayside). A restful atmosphere results from the studied relation between vehicles, tables and benches, fireplace, and other service facilities.

On the other hand, if vehicles and pedestrians are scattered "all over the place", the wayside cannot be kept clean, and the driving of vehicles over tree roots could destroy all the trees in the area. This point was obviously taken into consideration in the design of Seton wayside, where guide posts outline the roadways and parking area (See Figure 16b).

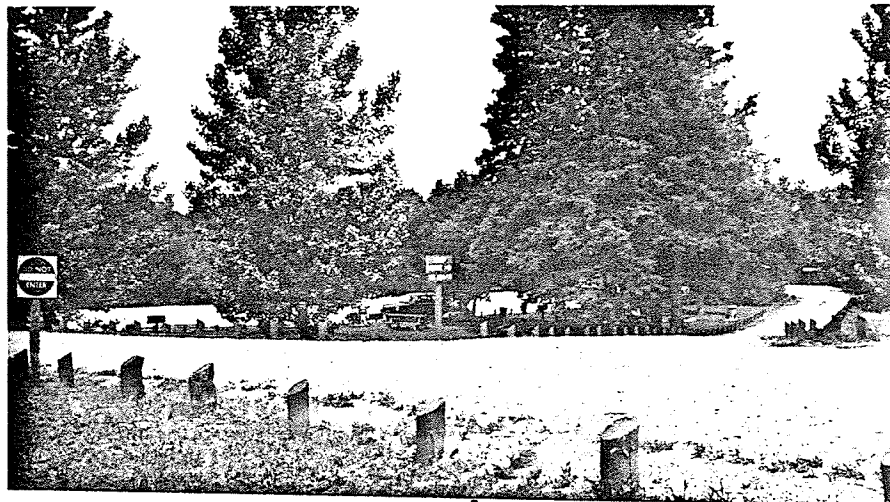
Order in arrangement of driver service facilities can be found not only at the waysides which feature one large parking area (Figure 16a and 16b), but also at Norquay wayside, where a circular drive leads to individual parking spaces for vehicles, with nearby table, bench, and barbeque grill units (Figure 16c).

Norquay wayside (located in the median of a divided highway), and Hargrave and Kirkella waysides (both on 2-lane, two-way highway), shown in Figures 17 (a-c), have a major weakness: They all lack acceleration and deceleration lanes despite the fact that they are all located on the heavily travelled Trans-Canada Highway Number One. Travelers have voiced strong complaints that this hinders safety and freedom of movement on the through traffic lanes. Furthermore, since there is no pairing of waysides, one for each direction of traffic, motorists often have to cross on-coming traffic lanes in order to enter a wayside park - a dangerous manoeuver on this route. In addition, the shoulder turn into Kirkella wayside, as shown in Figure 17c, is too difficult to negotiate especially for big vehicles.

a.



b.

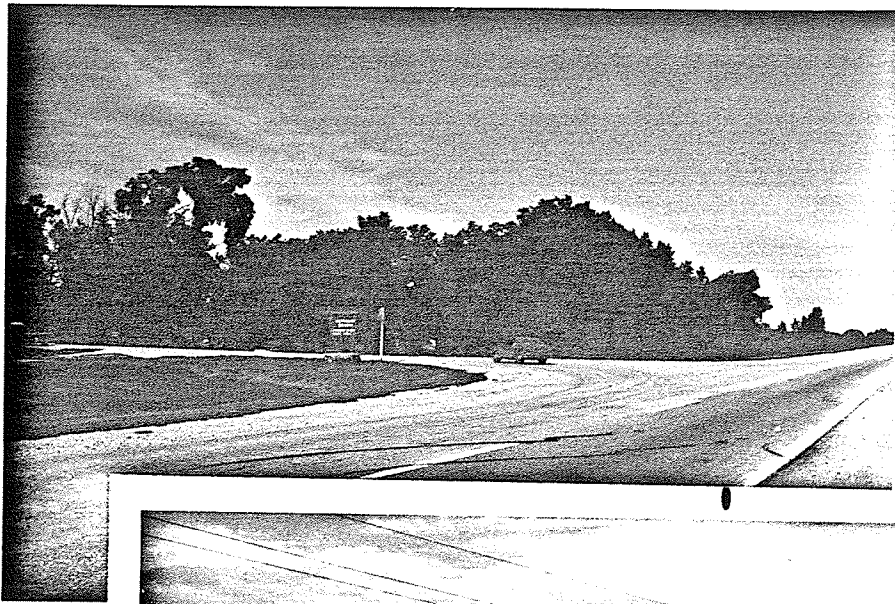


c.

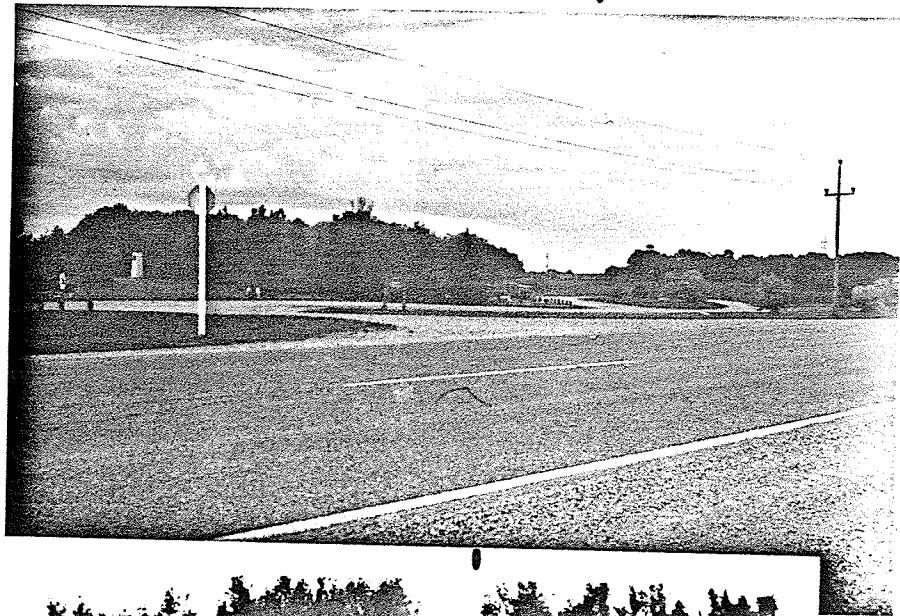


Figure 16. Orderly Control of Vehicles.

a.



b.



c.

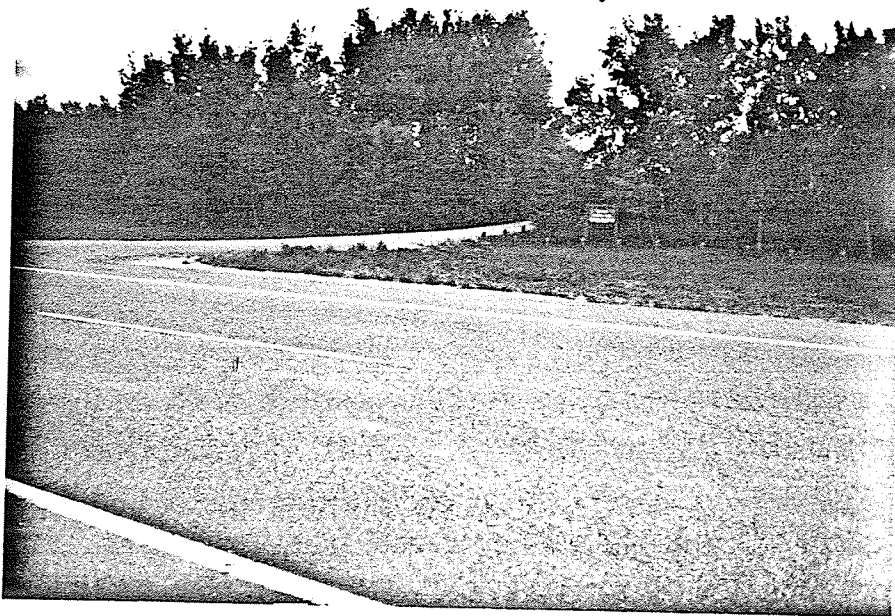


Figure 17. Lack of Acceleration & Deceleration Lanes.

In cases where wayside park facilities were poorly kept, vandalism was high. One example of an inadequately maintained facility was at Norquay wayside. Due to filthy outhouses, broken toilet seats, and lack of toilet paper, people chose to relieve themselves behind the building (See Figure 18a).

Lack of running water to wash hands or dishes was another serious deficiency at Norquay wayside, contributing to misuse or abuse of the area. Without a doubt, the small percentage of the travelling public that tends to be very messy in its habits (See Figure 18b), can best be controlled by providing modern, well-maintained facilities.

A perfectly adequate barbeque grill in scale with park-like surroundings is shown in Figure 19a. Such simplicity and economy of design, is necessary to conserve fuel and encourage small efficient cooking fires. These grills, cordwood (See Figure 19b), and tables, were greatly utilized at the waysides studied, and users commonly demanded that more tables should be provided for mealtimes.

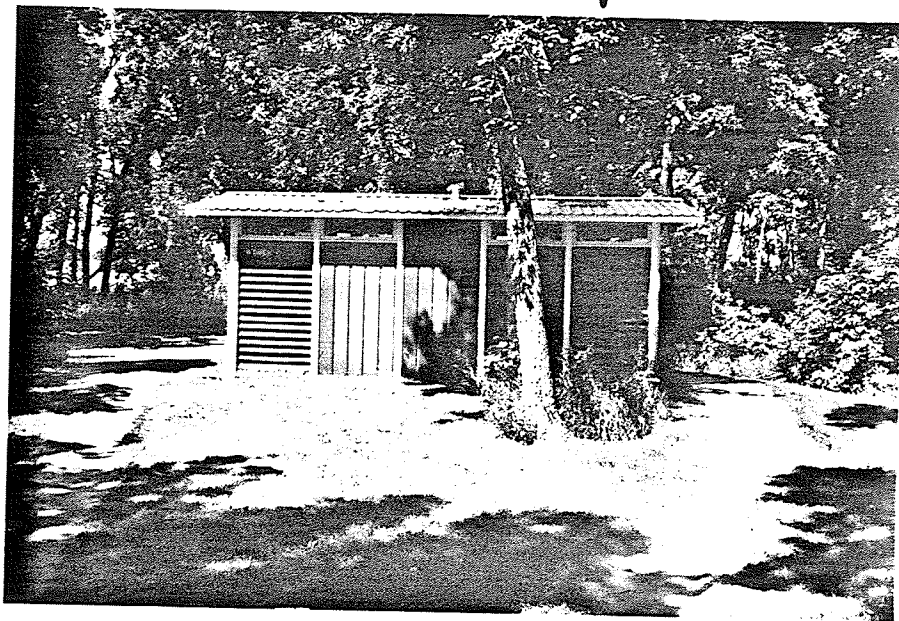
Figure 20 shows a picnic shelter which is ideal for protection from the elements. It is highly utilized at Hargrave wayside especially during rainy days.

Internal signing providing brief clearly worded travel information and regulations governing the use of the area (Figure 21), has been found to be very effective.

In Figure 22, existing trees are well utilized to provide shade and some privacy in the public area (Figure 22a), or to partially hide the toilet as in Seton wayside (Figure 22b).

Historical displays or monuments as shown in Figures 23a and 23b (at Hargrave wayside and Kirkella Information Plaza respectively), provide enjoyment for wayside park users, and contribute to Manitoba's cultural heritage.

a.



b.

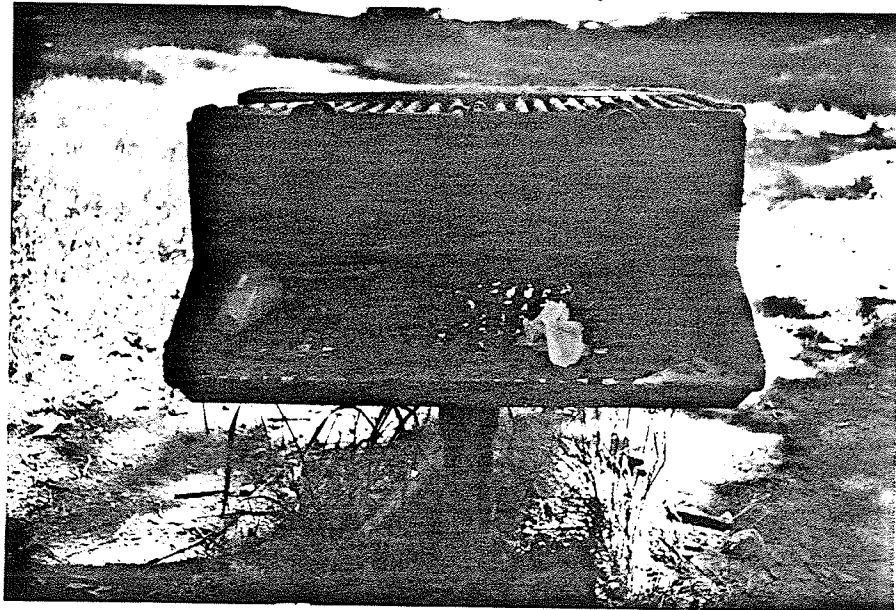


Figure 18. Toilet and Barbeque Facilities at Norquay Wayside.

a.



b.



Figure 19. Provisions for Outdoor Cooking.

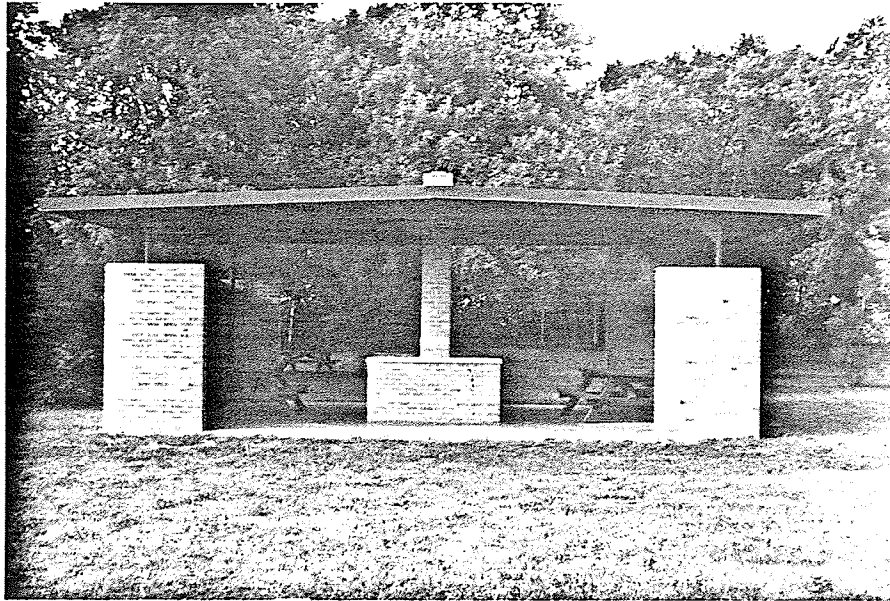
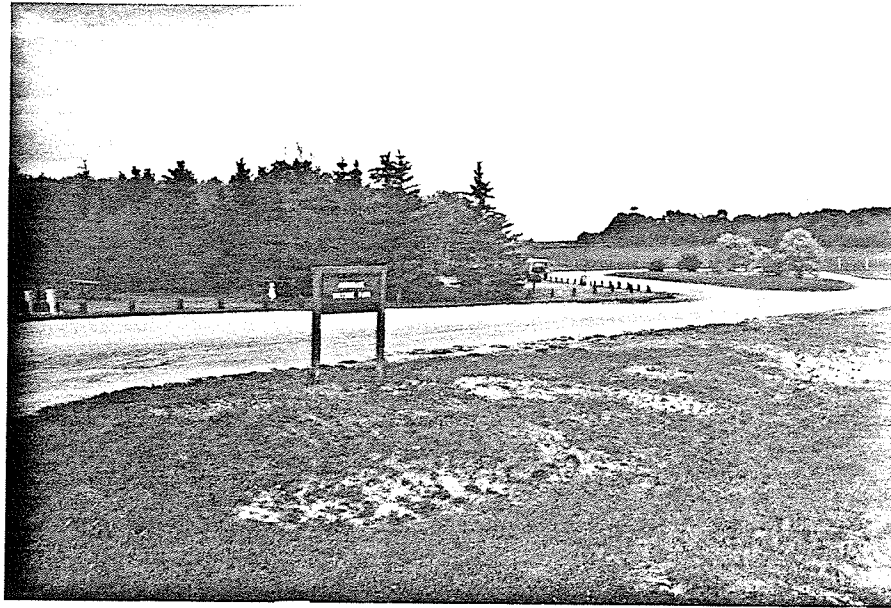


Figure 20. Picnic Shelter.



Figure 21. Internal Signing.

a.



b.

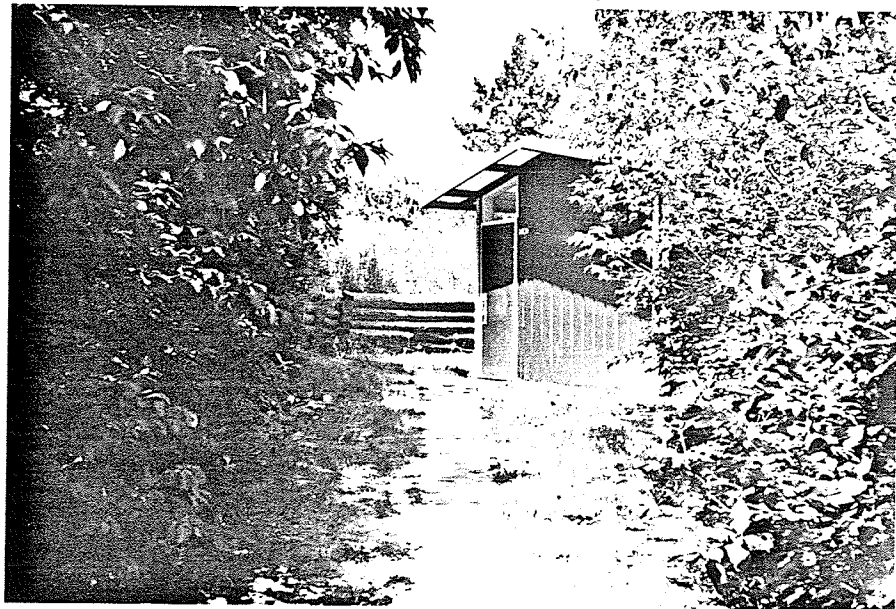


Figure 22. Trees for Shade in Picnic Area (Upper), or for Partially Screening Toilets (Lower).

a.



b.



Figure 23. Historical Displays.

Kirkella Information Plaza, shown in Figure 24, is a wayside park combined with an information centre. It welcomes the east-bound traveller from Saskatchewan and bids farewell to the west-bound traveller on Trans-Canada Highway Number One. The travelling public appreciates such pleasant clean wayside parks perhaps more than many of the services provided by highway departments. Good public relations like these are worth more than the relatively small cost of a few wayside parks.

At such a provincial border location, travellers stop for orientation and plan their trips in a manner that is beneficial to a safe journey. Wayside parks in general, and information centers in particular, are excellent facilities for communicating with the travelling public. Indeed with properly located sites, the need for an extensive public highway communications system could be greatly reduced.

Kirkella Information Plaza could be improved by providing motorists with an opportunity to telephone for dining or lodging reservations if so desired. In addition, the area lacks benches outside the trailer information unit which could be used to study or read the informational literature which they receive.

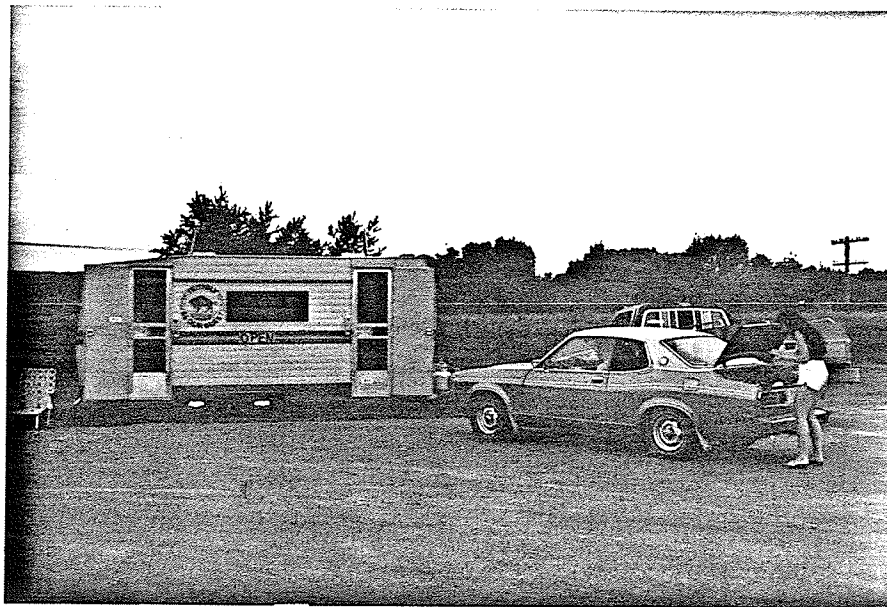
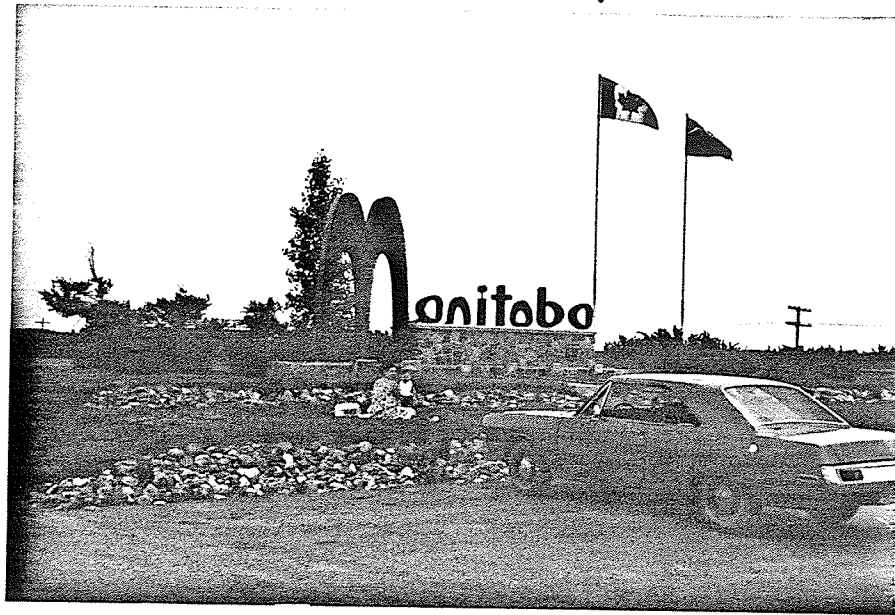


Figure 24. Kirkella Information Plaza.

111. THE QUESTIONNAIRE

The questionnaire (See Appendix F) was designed with the following goals in mind:

1. To determine the actual stopping patterns followed by travellers - i.e. the frequency of stopping in terms of distance and time, the length and purpose of stops, and the types of places used for stops. Also, to find the extent to which wayside park facilities are utilized for "atypical" reasons - i.e. overnight stops.
2. To obtain a profile of wayside park users in terms of their type of trip (day or overnight), their party size, purpose of trip (pleasure versus business), and average distance travelled per day.
3. To get opinions of wayside park users on the adequacy of wayside park facilities, road signage for wayside parks, and the present number of wayside parks on the routes studied.

A total of 136 questionnaires were conducted through personal interviews with wayside park users.

It was felt advantageous to categorize wayside park users into two groups for the purpose of analysis: those whose home is in Manitoba, called the "In-Province"; and those whose home is outside Manitoba, the "Out-of-Province." The reason for this categorization is that merely examining wayside users as a whole, may not describe the complete picture as wayside park users may indeed be composed of distinct groups with different patterns of behaviour. For similar reasons, the five wayside parks were treated separately as well as in whole.

Methodology for Determining the Average Distance and Time Between Stops

It was decided to express the frequency of stopping not only in terms of distance, but also in terms of time, as it is not only the distance one has to cover that must be considered but also the time it takes depending on the speed with which one travels.

To obtain the average distance between stops, wayside park users were asked where they spent last night, and where they stopped along their route so far the given day. The distances between the stops could then be determined from a map. The average distance between stops was then obtained by dividing the total distance between stops by the number of stops that were made. This procedure was based on the assumption that the route taken between one stop and the next is the route that one normally takes (i.e. the most frequently travelled route between these two points and usually also the shortest).

To obtain average length of time between stops, wayside park users were asked to indicate their average speed of travel. By knowing the distances between stops and the average speed, the average time could readily be obtained.

The Findings

(i) Distance Dimension

Table 3, shows the average number of kilometers (miles) travelled from one stop to the next. It indicates that wayside park users as a whole stop every 184 km. (114 miles), and that the In-Province users stop more frequently (every 132 km. or 82 miles) than the Out-of-Province users (every 204 km. or 127 miles). In-Province users at Norquay wayside show a significant variation from the above mentioned averages but a further examination of these users shows that many of them spent

the previous night at Norquay Beach campground located across the road or in Winnipeg and thus the distance travelled was much less than average.

The distribution of distances travelled between stops is displayed in Table 4. Distances travelled between stops for wayside users as a whole, fall most frequently in the ranges of 0 to 49 miles or 79 km (23.9%), 50 to 99 miles or 81 to 159 km (23.0%), and 100 to 149 miles or 161 to 240 km (20.0%). A significant percentage of wayside users (17.3%) also travel an average distance in the neighborhood of 150 to 199 miles (242 to 320 km).

Table 5 shows the average distance travelled between former stops and the wayside. The results are very similar to those in Table 3 with users as a whole stopping at the wayside park after driving for 185 km (115 miles) on the average. Again, Out-of-Province users drive a longer distance (211 km or 131 miles) than In-Province users (134 km or 83 miles), before pulling into a wayside park.

The distribution of distances travelled between previous stops and the wayside park is revealed in Table 6. This shows that motorists most commonly drive non-stop for 0 to 49 miles or 79 km (23.0%), and 50 to 90 miles or 81 to 145 km (23.8%), before stopping at a wayside. The remaining percentage of 53.2% accounts for wayside users who travel 100 miles (161 km) or more before entering a wayside.

(ii) Time Dimension

Table 7 shows that wayside park users as a whole tend to stop on the average every 1 hour and 55 minutes. The In-Province users travel for shorter time periods (1 hour 23 minutes) than the Out-of-Province users (2 hours 8 minutes). These shorter time spans for In-Province users are also evident for each wayside with the exception of Kirkella

wayside.

Table 8 shows that the distribution of average time spans between stops for wayside users as a whole, peaks between the 0 to 59 minute interval (30.5%). The 1 hour to 1 hour 59 minutes, and the 2 hours to 2 hours 59 minutes intervals, rank second and third with an overall percentage of wayside users of 25.4% and 22.3% respectively. But for time spans of 3 hours or more, there is a sharp drop in percentage of wayside park users (21.8%).

Table 9 shows that wayside park users overall, drove non-stop for an average of 1 hour and 56 minutes before entering a wayside park, and that Out-of-Province users are in less of a rush to stop at the wayside park (averaging 2 hours 13 minutes) than In-Province users (1 hour 23 minutes). These time spans are very similar to those for stopping in general as found in Table 7.

Table 10 shows that the distribution of average time of continuous driving before hitting a wayside park, peaks for the interval of less than 1 hour (30.9%), in conformity with the trend for length of time of continuous driving between stops in general as found in Table 6. A significant percentage of wayside users (26.8%) drive non-stop in the neighborhood of 1 to 2 hours before pulling into a wayside park.

But continuous driving for 2 hours or more immediately prior to entering a wayside park is less common among wayside users in general, accounting for a combined percentage of 42.3%.

(iii) Profile of Wayside Park Users

Table 11 shows the portion of visitors on an overnight trip away from home, as opposed to those on a day trip. The vast majority of motorists (91.9%) were on an overnight trip. Another observation is

that Norquay wayside showed the highest concentration of motorists on a day trip (27.6%).

Table 12 describes the motorists' duration of stay at each of the waysides for both In-Province and Out-of-Province motorists. Overall, most motorists stopped between 30 minutes and 1 hour (47.8%), and the least motorists stopped overnight (0.7%).

The reasons for stopping at a wayside park are displayed in Table 13. More motorists stopped for a picnic (35.9%), while very few stopped for a long rest (3.7%).

A description of the average size of the travelling group appears in Table 14. Overall, the average group size was 3.5. The group size for the In-Province users (3.9) was found to be somewhat higher than that for Out-of-Province users.

Table 15 shows the purpose of the trips. Of the total of 134 wayside park users questioned, almost all were on a pleasure trip (90.3%)

The distance the motorists expected to cover for the day of the survey, appears in Table 16. 559 kilometers (347 miles) was the average distance hoped to be covered by the motorist from outside Manitoba, while only 332 kilometers (206 miles) was the average distance expected to be covered by the motorist from Manitoba. The overall average distance expected to be covered was 470 kilometers (292 miles).

(iv) Views of Wayside Park Users

Table 17 indicates that as many as 44% of wayside park users as a whole, did not feel that there are enough wayside parks on their route in Manitoba. On the other hand, 50% were satisfied with the present number of waysides, while the remaining 6% weren't sure. This view was shared quite evenly among Out-of-Province and In-Province users.

Almost half of those interviewed at Keyes wayside (48%), complained that there was a shortage of waysides on the Number 4 Highway in Manitoba (the Yellowhead Route). In specific, they argued that there is nowhere to stop between Portage La Prairie and Keyes wayside (a distance of 85 km or 53 miles) and that there was a definite need for an additional wayside to be located between these two points. It was also argued that the distance of about 160 km (100 miles) between Keyes and the next wayside heading west on the Yellowhead route (at Binscarth Centennial Park) is much too long. This and the fact that it was difficult to find unoccupied picnic tables during the busy lunch hours reinforced the idea that more waysides should be located on the Yellowhead route.

The situation on the Number 1 Highway (West) was found to be quite similar to that on the Yellowhead route, with 47% of the users of the four waysides combined (Seton, Norquay, Kirkella, and Hargrave) claiming that there is an insufficient number of wayside parks. In particular, it was mentioned that more waysides are needed for the following reasons: children must have frequent breaks, waysides add to the charm of the province and encourage people to revisit it, and that it is necessary to cut down on the heavy usage of existing waysides.

With regards to adequacy of road signage for wayside parks, Table 18 indicates that most wayside park users as a whole (71%) feel that the road signage is satisfactory. A closer examination reveals that the road signage problem is more acute for Out-of-Province wayside users (31.2% indicating signs are inadequate) than it is for In-Province users (23.8%). The major criticism was that the road signs fail to differentiate between wayside parks and camping areas. The wayside park sign left many

people confused as to what the stop was for, and this confusion about what the symbols on the sign represent, was more pronounced among tourists who were new to Manitoba. To eliminate this confusion, respondents favored using a sign with a picture of a picnic table as opposed to a camping sign showing a picture of a tent or trailer. Or another common suggestion was that signs should read "Roadside Table" as this use of words should clear everyone's mind as to the kind of place one is stopping for. Another common complaint was that one could hardly see the signs when travelling at highway speeds and consequently the motorist often misses out an opportunity to stop. To overcome this problem, a common suggestion was to make these signs more noticeable (i.e. bigger). It was also suggested that the sign should be more striking in color as one can hardly see the dull green wayside sign. Still another criticism was that the road signs don't tell you which side of the road the waysides are on and that this is inconvenient as well as dangerous. To overcome this, it was suggested that arrows be put on the sign. Moreover some wayside park users complained that the signs don't give enough notice in advance as to where the waysides are. On top of that, it was noted that there wasn't even an approach sign seen for Norquay wayside heading West. Nevertheless, wayside visitors often indicated that they like being able to read on existing Manitoban wayside park signs, how many miles it is to the next wayside.

With regards to the facilities at the wayside parks, shown in Table 19, most respondents (39.7%) felt that they were good. In addition a significant proportion found the facilities to be very good (28.6%) or excellent (21.4%). Only 1.6% found the facilities to be unsatisfactory. When asked to comment on the facilities, they most often expressed

their appreciation for the following reasons:

In general, the waysides have everything that's needed.

The waysides are very nice grassy areas. The trees also enhance the look of the waysides and offer much needed shade.

It's great to have a water pump, for example, for wash hands after a barbeque.

The fire wood and barbeque are very nice to have.

To a lesser extent the parking arrangement and the idea of a washroom which is partially screened were also appreciated.

On the other hand, wayside park users overall expressed their dissatisfaction with the facilities mainly for the following reasons:

There was a need to have flush toilets available.

Waysides were often too crowded around noontime (especially at Keyes on the Yellowhead route), and there was often a shortage of picnic tables or garbage cans.

Toilets were often dirty and with no toilet paper.

It was felt that certain waysides were too close to traffic without having some kind of screen (i.e. trees and shrubs).

Examining the waysides separately it was noted that visitors at Kirkella and Norquay waysides, seemed to elicit most of the unfavorable comments about the facilities. At Kirkella wayside, a frequent complaint was that the site is too congested and too small, making it difficult if not impossible to turn a trailer around during the busy hours. It was suggested that a sign be put up indicating that this wayside is unsuitable for trailers. In addition, it was felt that Kirkella wayside is situated too close to the highway. At Norquay wayside, a very strong

complaint was that the washrooms were extremely dirty often without toilet paper. Also missing was wood for the barbeque. In addition Norquay wayside users complained that the tables were not kept clean and that there was no running water to for example wash your hands after a picnic or going to the toilet.

To a lesser extent wayside park users at Hargrave and Keyes waysides also complained that the toilets were not kept clean or that there was no paper in the toilets. Moreover at Hargrave, the water pump was found to be virtually dry.

IV. TRAFFIC COUNTS

Purpose and Method Used

The purpose of the traffic count was to determine the extent and pattern of use of each of the five wayside parks. In particular, data was gathered on the numbers and types of vehicles stopping at a wayside park in relation to the total highway traffic and types of traffic (i.e. tourist versus local or commercial).

Vehicles were categorized as being either Manitoban, Out-of-Province, Commercial, or Unidentified, according to what could be observed from looking at their license plates. The traffic counts were taken for 17 days spread over the months of June, July and August in 1977. Readings were taken for each hour between 10:00 a.m. and 8:00 p.m. and recorded under the four categories mentioned above. Each wayside was visited for about three days and so any hour interval left blank on the traffic count sheet by the first day's observation, was filled during the second or third day. Where more than one reading was taken for a particular hour, in 3 days of observation at a particular wayside, an average for the hour was determined.

With the exception of Norquay wayside, the hourly traffic counts were for traffic moving both ways. Norquay wayside is situated along a divided highway and this necessitated separate readings for each direction of traffic flow.

Traffic Count Findings

Table 20 shows that for the equivalent of one day (specifically between the hours of 10:00 a.m. and 8:00 p.m.), 59 vehicles entered Seton wayside. This constitutes 2.2% of the overall traffic that passed or stopped at the wayside. Whereas most of the traffic consists of Manitobans (41.0%), the percentage of Out-of-Province vehicles stopping at Seton (3.3%) is greater than the percentage of In-Province vehicles stopping there (2.4%).

The traffic count for Keyes wayside is revealed in Table 21. As was the case of Seton, most are from Manitoba. Again at Keyes, the percentage of Out-of-Province vehicles stopping (5.1%), was greater than that of In-Province vehicles (3.5%). The actual number of vehicles that entered Keyes wayside during the ten hour day (59), was identical to the number for Seton wayside, but a higher percentage of the overall traffic stopped at Keyes wayside (3.3%).

Table 22 shows that only 27 West-bound vehicles (1.1% of the overall West bound traffic), stopped at Norquay wayside during the 10 hour day. A possible reason for this low number of wayside park visitors was that heading West, no road sign for this wayside park was seen. Most of the vehicles heading West were from Manitoba (54.8%). But the concentration of Out-of-Province vehicles stopping at the wayside (2.1%) was higher than that of In-Province visitors (.9%).

Table 23 shows that of the total East-bound traffic, 46.5 vehicles (1.5%) stopped at Norquay wayside during the 10 hour period.

Manitoban vehicles accounted for the vast majority of this east moving traffic. However, despite being fewer in numbers, Out-of-Province travellers showed a greater tendency to stop at the wayside (2.1% of Out-of-Province stopping as compared to 1.5% of In-Province).

The traffic count findings for Kirkella wayside, as shown in Table 24, differed from those for the three previously mentioned wayside parks in that Out-of-Province vehicles were more common on the road accounting for 59.8% of the grand total for vehicles passing and stopping combined. The percentage of Out-of-Province vehicles which stopped at Kirkella (2.4%), was greater than that of In-Province vehicles (1.7%). The overall percentage of vehicles which stopped at Kirkella wayside was 1.9% (51 vehicles for a 10 hour day).

Table 25 shows traffic counts for Hargrave wayside, which like Kirkella wayside, is very close to the Manitoban border. Similar to the findings for Kirkella, the overall total traffic which passed or stopped at Hargrave consisted mostly of Out-of-Province vehicles (47.7%). Also the percentage of Out-of-Province vehicles that stopped (3.8%) was higher than that for In-Province vehicles. The overall percentage of vehicles that stopped at Hargrave was 2.7% (77.5 vehicles for the ten hour day), which seems to indicate that Hargrave wayside is more popular than the one at Kirkella.

Table 26 shows the average number and percentage of vehicles accumulated in a wayside park for hourly time intervals between 10:00 a.m. and 8:00 p.m. The results are based on overall averages for the five wayside parks combined. Waysides as a whole seemed to be most busy between 12 noon to 1:00 p.m. and also between 5:00-6:00 p.m. This is hardly surprising as these times correspond to the times for lunch and supper, and as observed from Table 11, the prime reason for stopping

at a wayside was for picnicking. On the other hand, very few of the overall number of visitors were found before 11:00 (5.6%), or after 6:00 p.m. (5.1% between 6:00 and 7:00 p.m., and the same between 7:00 and 8:00 p.m.).

V. SUMMARY OF SURVEY FINDINGS

Wayside park users surveyed drove on the average 184 km (1 1/2-2 hrs.) between stops. The average distance motorists expected to cover for the day of the survey was 470 km.

The vast majority of the motorists (91%) were on an overnight trip away from home (as opposed to a day trip). Most motorists stopped at a wayside park for 30 minutes to 1 hour (47.8%), while the least motorists stopped overnight (0.7%). More motorists stopped for picnicking (35.9%), while very few stopped for a long rest (3.7%). The average size of the travelling group was 3.5, and almost all travellers (90.3%) were on pleasure trips.

As many as 44% of wayside park users did not feel that there are enough wayside parks on their route in Manitoba. Another major criticism was that road signs fail to differentiate between wayside parks and camping areas. In addition, it was argued that these signs do not indicate which side of the road the waysides are on and that this is inconvenient as well as dangerous.

With regards to the facilities at the wayside parks, only 1.6% found them to be unsatisfactory. Dirty outhouses was the most common complaint, and some users felt that flush toilets should be provided.

Lack of acceleration and deceleration lanes, and the need to cross on-coming traffic lanes in order to enter a wayside park, jeopardizes wayside park users and traffic on the major highway studied.

CHAPTER SIX

THE ANALYSIS

INTRODUCTION

The users of the routes studied can be divided into four categories:

1. Passenger car drivers (who make leisure trips);
2. Heavy truck drivers;
3. "Professionals" (those who go to work in light vehicles);
4. Recreational vehicle drivers (vacationers or tourists).

These four categories of drivers are certainly distinguishable in terms of their vehicles used, but also, (and this shall be found to be very important) by the constraints that they are faced with when driving. This is why the analysis will begin by first considering leisure drivers of passenger cars: For reasons of weak constraints that they face, their attitudes towards their trip and their preferences regarding stops are especially visible. It is from this category that it will be possible to conceptualize a classification of individuals, a typology, which will be utilized to account in a more refined fashion, attitudes and judgments in matters of stops. Nevertheless, this typology is also applicable to the other categories of drivers but given the stronger constraints, the weight of the attitudes in the determination of behaviour is significantly less.

In none of the categories is the stop purely functional, although it could be for some individuals. The urge to stop depends on:

1. The global conception of the trip - does the trip only have a utility value, a means relatively tiresome to reach one's destination, or does it lend an attraction in itself?
2. What people are inclined to do when they stop - to

stretch their legs, to play, to answer calls of nature, or to enjoy nature, to sleep, picnic etc.

In turn, the above two factors are contingent upon the characteristics of the displacement - its length, the time of the day one travels, time-table constraints, and the group composition that is on the move.

According to these factors, not only would the needs to stop be different, but the means envisaged to satisfy these needs would be also different. In some situations, a simple stop in the leeway would suffice, in other cases a parking turnout would do or more elaborate roadside developments, for others still, stops are rarely made next to the highway, these drivers prefer to stop in remote villages to escape the monotony or noise of the road, etc. ... Indeed, the routes studied, are not "closed" - it is always possible to come out of the highway and thus ensure necessary stops elsewhere than in wayside parks provided for this purpose.

From these considerations, an attempt will be made to determine the types of stop needs which can or should be satisfied on the highways. In so doing, it should be noted that wayside parks should not only exist but also that they be known to motorists. Indeed wayside parks are seldom thought of in advance - when the need begins to be felt, then the motorist seeks out an area to stop. On this count, the wayside park usage study found that highway signing for wayside parks are inadequate often resulting in considerable confusion.

In view of all these points, it is felt on the one hand that proposed criteria and guidelines for wayside park development should be in terms of a wide range of stop possibilities offered "naturally" along the highways; on the other hand, that these proposals should not be

limited to the location of these areas and facilities to be provided, but also to the matter of information.

In analyzing the needs to stop for the different study groups, it shall be found that these needs directly depend on an individual attitude that can be called the "stop concept". This attitude plays a more important role when the constraints (emanating from the displacement and the stop conditions), are weaker. Obviously it is among leisure drivers of passenger cars that these attitudes have the most significant effect. This is why the attitudes and behaviours of this category of users are first to be analyzed.

In the second part of this chapter, the analysis will focus on heavy truck drivers. They are the ones for whom the constraints are optimum (relating to their jobs, bulkiness of vehicle etc.). Finally in the third and fourth part, the recreational vehicle drivers and the "professionals" will be dealt with, who, considering the constraints that they face, are intermediate cases between heavy truck drivers and leisure drivers of light vehicles.

LEISURE DISPLACEMENTS IN LIGHT VEHICLES

Before tapping the different attitudes and judgments surrounding the "stop concept", it is first appropriate to analyze the stop procedure by means of the interviews and observational data of the way-side park usage study.

1. THE STOP PROCEDURE

To begin with, comments should be made on two matters - stop forecasts and the search time for the stops.

The stop forecasts - These very rarely take place. In other words, it is very seldom that the motive and the place to stop can be predicted in advance. Some motorists know that they have to stop for certain motives such as eating or they think that they would stop to relax etc. But it is not possible to talk of forecast to the extent that the choice to stop is not really called for until such time that the need is felt during the trip, and very seldom at the time of starting one's trip.

The search time - It is necessary to distinguish between two aspects of the search time:

- (a) On the one hand, it is the time while driving, during which a motorist looks to the left or to the right in order to find a roadside stop.
- (b) On the other hand, search time can also be the time spent beyond the trip's trajectory to find a suitable stopping spot. Considering the overall purpose of the trip, search time of this sort could also be a waste of time.

Both aspects of search time obviously depend on the occasions one

happens to meet and also the needs of those who travel.

There are three dimensions that intervene in the stop procedure:

1. The birth of the need to stop: In general, as mentioned before, the need appears sometimes during the course of the trip.
2. The occasion met: Faced with an offer, the question is whether the travellers will be contented to stop or whether they will choose to push on until they hit a more favorable spot.
3. The tendency of those who travel to create roadside stop possibilities for themselves. It is necessary to elaborate on this point since it sheds light on the important issue of highway signing.

To begin this discussion, it should be noted that knowledge of the route allows a motorist to keep moving on his way rather than stop suddenly - for instance, some of the motorists interviewed disregarded certain wayside stops because they knew that a more interesting spot lied further ahead. In fact nothing is surprising if one knows all the stop possibilities on the way. However, when this knowledge of the route is less precise (i.e. when making the trip very rarely), it interferes with one's trip - In particular, the motorist tends to greatly under estimate the existing stop possibilities, thinking only in terms of distinctive stops that stand in his mind while making his trip.

In line with the above reasoning, it was learned from interviewing travellers at the wayside parks, that they often stopped at a given place because they were unaware of existing stop possibilities some kilometers ahead. This point appears to be important because it calls highway signing into question. These signs should enable drivers to become aware of what they are going to meet on their way. Signs must give the

motorist sufficient warning in advance of stop possibilities and moreover, they should be distinctive and of a large enough size in order to "register" with the motorist. A sign which can be remembered by a motorist travelling on the same road another day is much more effective than a simple signboard indicating a stop say twenty kilometers ahead. The signing problem will be elaborated on in the conclusions, as it is necessary to get back to the stop procedure.

In order to be more precise about the above three dimensions intervening in the stop procedure, schemes of causality based on interviews with wayside park users are presented below:

The most common scheme was found to correspond to the chronology 1→2→3 and reads as follows: Motorists first developed an urge to stop. Then they saw a spot and on the basis of what they knew or visualized on the road, they made a decision to stop or go on. This scheme usually applied to those who had an impaired knowledge of the route - in particular to many of the tourists who stopped at the wayside parks (signs play a key role here).

However, in cases of good memory or knowledge of the route, scheme 1→3→2 operated: motorists first felt the need to stop. Their knowledge of the route then came into play influencing them to stop at a particular spot. This scheme particularly applied to local people who travelled the route more or less regularly.

Whereas the above two schemes occurred most frequently, scheme 2→1 should also be noted: motorists discovered a particular spot and it in turn triggered the need to stop - in other words, it was the occasion that created the need. For example, the Information Plaza at the Manitoba border is a landmark arousing much interest among motorists

who stop to take pictures. This manner of availing oneself for the occasion is generally characteristic of users who like to stop for pleasure. It could also be, purely and simply, the birth of a stop which without that occasion would not have existed. Moreover, it can also apply to the anticipation of a need. Therefore, the chronological scheme could be represented by 2→1→3: The occasion precedes the need, and the user decides to stop suddenly in accordance with his knowledge of the road. Lastly and seldom enough scheme 3→1 can take place and reads this way: The motorist knows a spot on his route where he can decide a priori, to stop. In other words, the stop is aroused uniquely by a particular place.

Some Characteristics Underlying the Stop Procedure

Actual observations of wayside park users, although not made in a systematic manner, has made it possible to examine some of the conditions under which they effectuate their stops.

These observations revealed that during noon hour and between five and six P.M., many travellers stop to picnic. But it should be emphasized that the stop to picnic is of extremely varied nature. To illustrate, some wayside park users were seen rapidly devouring a sandwich inside their car in spite of the fact that the facilities there provided an opportunity to get out and eat. By the same token, there were others, who for equivalent journeys, were seen widely stretched on the grass after having taken the time to select an attractive spot conducive to some moments of rest which follow the meal. Finally, some people were observed taking time to search for a pleasant spot to enjoy the beauty of nature.

Regarding the precise location of the picnic (i.e. the place

where people sit to eat), two points should be noted:

- (a) Location in relation to the vehicle: The picnic almost always takes place near the automobile in such a way that the car could be seen from the picnic spot. Under rare occasions when the car is not directly visible, the driver is inclined to stand up periodically to check if his car is still there.
- (b) The localization on the site: The people who picnic, regardless of whether they stay in the car or choose to get out, are always situated in a place which presents some symbolic unity (i.e. under the shade of a tree, near a hedge, or in a small clearance). The point is that they are not situated in a dead space but occupy a definite number of "places".

Other than mealtime, another type of stop commonly observed was for families to allow their children to stretch themselves. Once again it was observed that these stops are of extremely varied nature. A brief stop for a few minutes was usually to use the washroom. This particular stop is not confined to any specific place - in practical terms it is simply a matter of being able to park the car any safe distance off the road. In contrast a stop for the children to run and frolic requires a free space totally removed from the roadway.

Whereas this investigative typology is not exhaustive, it's intention is to illustrate some of the conditions underlying the decision to stop.

11. CHARACTERISTICS OF THE DISPLACEMENT

The characteristics of the displacement intervene in the motives

to stop and also in the exigencies to stop. (1) These characteristics are:

- (a) the length of the trajectory
- (b) the composition of the party undergoing displacement
(especially the presence of children).
- (c) the time of the displacement (day or night)
- (d) the purpose of the displacement.

The length of travel

The probability of stopping increases with the distance or time spent travelling. This is supported by the interviews with wayside park users which indicated their intentions to cover an average of 470 km (292 miles) by the end of the day. Seldom were these users found to be on relatively short trips (i.e. 150 km or less).

Aside from some compulsory stops which are made no matter how short the trip is (mechanical repair, gas, calls of nature etc.), certain stops seem to appear at certain time intervals (i.e. stop to rest). However, it is not possible to elaborate on this matter without considering the range of individual attitudes relevant to the entire population of highway users.

The composition of the party undergoing displacement

The presence of children in the car is a basic reason for stopping. This is supported by the findings of the wayside park usage study showing that the average party size of wayside visitors was 3.5 and that families with children were of common occurrence.

¹ National Road Safety Organization, The Interest and Contents of a Policy on Rest Areas on National Roads.

The time for the displacement

Night displacement occasions less stopping than the day ones. For this very reason, it is sometimes chosen. For motorists who do not like to make stops but must nevertheless travel long distances with their children, travel by night is the only means to conciliate all their exigencies. Inversely, travel by night is an unlikely choice of motorists who enjoy making stops because night time stops may be dangerous or may lack interest.

Indeed, the effect of night displacement is to cancel numerous stops necessary during daytime including stops for physiological needs (to eat and drink), and especially stops for pleasure (to enjoy the beauty of nature, relax in the countryside, visit, etc.). The only stops taking place are those directly tied to the driving task. Moreover, stops for fatigue are infrequent since night driving implies that motorists are comfortable enough and also that they choose to somewhat resist symptoms of fatigue.

Similarly, stops are minimized in adverse weather conditions (rain, icy roads etc.). Thus, as for the case of night travel, a paradox emerges from the point of safety: It is indeed under tiring circumstances, that the likelihood of stopping is minimized.

The purpose of the trip

Users of the highway do not constitute a homogeneous population. The purpose of their trip, whether it be for pleasure, business, or both, is an important factor in the frequency of stopping. For example, the constraints faced by truck drivers in terms of their jobs, time schedules etc., minimizes the number of stops that they can make. On the other hand, motorists travelling on vacation, by reason of weak

constraints, look forward to pleasant stops on the way.

111. THE STOP CONCEPT

In searching directly for the exigencies in matters of stops, it is not possible to merely distinguish the different motives to stop - i.e. to find a motive typology. A typology on the stops practiced, should in effect take into account the following:

- (a) parameters tied to the displacement itself including its length, its purpose, the time it takes place, and the composition of the party on the move.
- (b) the motive to stop (i.e. to eat, use washroom, relax, etc.)
- (c) individual preferences (regarding frequency of stopping, choice of site, etc.).

Whereas the motive to stop gives insight into certain objective activities at the stops (eat, rest, etc.), it should be emphasized that a given motive can be ensured in different ways depending essentially on the function attributed to the stop.

This can be illustrated by elaborating on an earlier reference to observations and interviews with travellers stopping at the same way-side park, at approximately the same time, for the same motive - to picnic, in the midst of equivalent displacements: For those seating at the picnic table, the decision to stop often depended on the availability of a pleasant spot offering an opportunity to relax a short distance away from their car. But for those seen inside their car, hurriedly gobbling down a sandwich or the like, the place hardly mattered since their only concern was to satisfy their hunger.

What can be deduced in the first case is that the pleasure aspect

of the stop is of great importance to these users. In other words, rest and relaxation are associated with the motive to eat. Thus in essence, the decision to picnic is dictated by the exigency of an agreeable stop in nature. But in the second case, only the function counts - the motive to eat is a unique motive and the decision to picnic is dictated by an exigency of swiftness.

Hence, for defining the exigencies in matters of stops, a classification of stops according to the motive has no decisive relevance. In other words, it is only the exigencies that have to be defined in order to propose design guidelines for wayside park development.

Not only in the stop to picnic, but also in many others, it can be found that a stop may have two important dimensions: a utility motive and a pleasure aspect (or a dimension not strictly utilitarian). In between the two extreme cases of pure utility and pure pleasure, it is often hard to distinguish whether one is dealing with a utilitarian stop rendered pleasureable, or a pleasure stop with a utilitarian "excuse". Indeed the importance attached to the pleasure dimension is dependent upon the traveller's conception of the stops and the place granted them in the trip - the two bounds being whether stops should be minimized in order to save as much time as possible, or whether non-utilitarian stops should be created for which case the stops become the means to benefit from the trip.

It is now possible to begin to feel the pertinent axis for the definition of a typology of drivers from the point of view of their conception in the matter of stops. To define this typology with precision, a detailed analysis will now be made of a typical stop:

The overwhelming majority of wayside park visitors interviewed (81%), stopped as they put it - to rest, stretch their legs, or get away

from the steering wheel. But under this motive that can be broadly labelled "rest", are hidden three conceptions of this type of stop:

(a) Stops to relieve fatigue

Some motorists stop only when they feel tired. They perceive their stop to relax or stretch their legs as functional and vital for safety. It is an obligatory stop practiced by motorists who do not want to lose time in stopping.

(b) Stops to rest properly speaking

Often travellers seek to make a utilitarian stop (i.e. to stretch one's leg or to relax) more agreeable, thereby benefiting from the stop in more ways than one.

(c) Stops for pleasure

If stops to relieve fatigue carry the "rest" theme to one extreme, stops for pleasure do likewise in the opposite direction. For some motorists, the stop for pleasure is a way to benefit from the trip, as reflected by certain activities at the stop such as observing wildlife, playing ball, and suntanning.

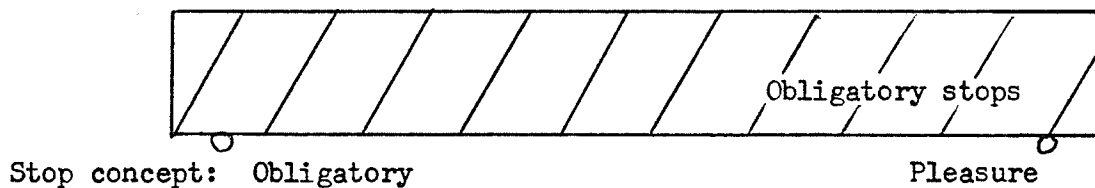
To the above classification of stops commonly labelled "rest", corresponds a classification of motorists according to a typology developed by the National Road Safety Organization in France.¹ This typology allows one to classify motorists from those who practice only obligatory stops, to motorists who practice stops for pleasure, through the intermediary of those who attempt to make the obligatory stops more pleasant.

¹ The Interest and Contents of a Policy on Rest Areas on National Roads.

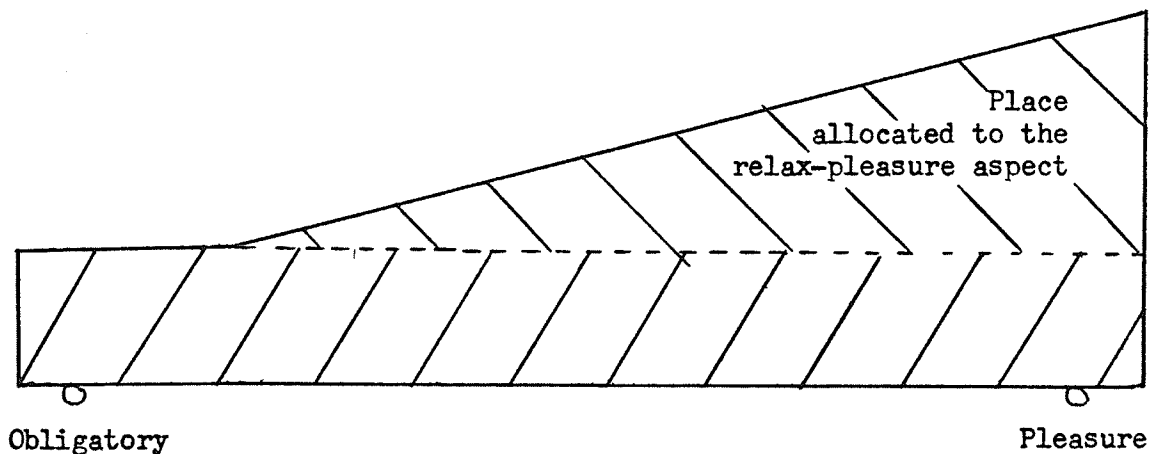
To fully grasp the typology, it will be presented in four stages, each with an illustration. Moreover, references made in describing this typology will not be limited only to stops of the "rest" type, but to the whole range of stop motives.

Definition of the Typology

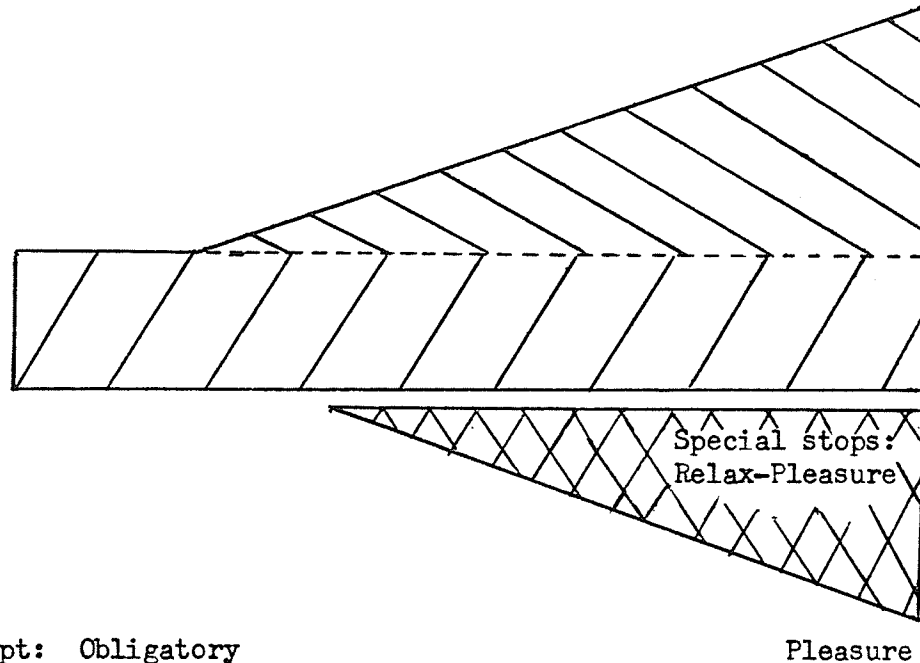
1. A displacement defined by its objective characteristics (the main factors being its length, its purpose, the presence of children, and situation in time), leads to a certain number of obligatory stops.¹ Such stops are independent of the stop conception which the motorist may have. They do not vary with the typology.



2. Even in obligatory stops, it's importance allocated to the relax-pleasure aspect which allows motorists to be classified according to the typology.



3. Whereas the previous stage referred to the place granted to the 'relax-pleasure' aspect in obligatory stops, it should also be noted that there are those stops which have nothing obligatory in nature, but which are uniquely of the relax-pleasure type.

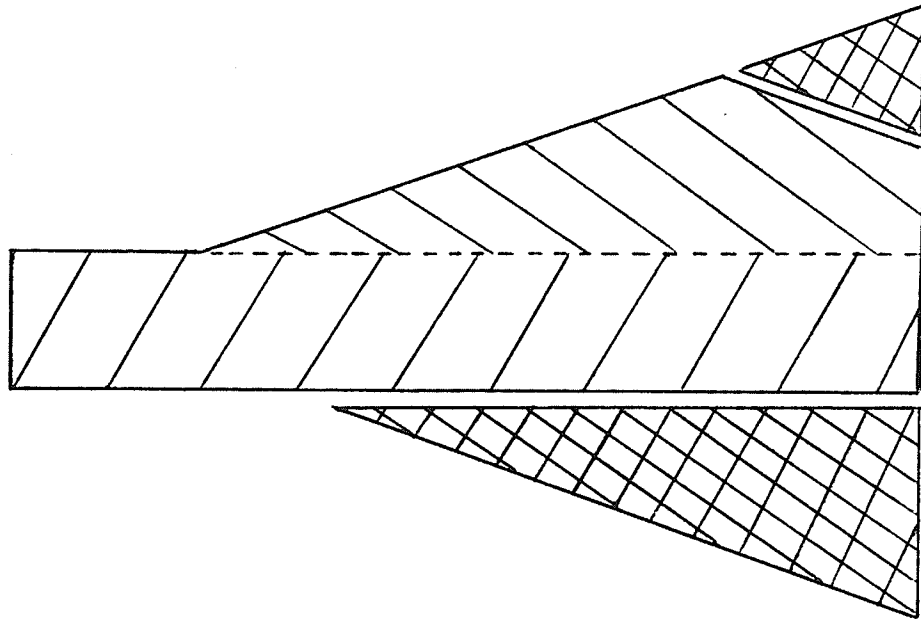


4. Finally, there are those obligatory stops which are difficult to render agreeable and this difficulty is magnified if a motorist becomes more imposing on the "pleasure" dimension.

For instance, some travellers utilize a stop for gas to stretch their legs or relax. However, this does not appeal to those who are more demanding on the pleasure dimension.

¹ Obligatory stops refer to those corresponding to physiological needs (to eat, use toilet, relieve fatigue, etc.), or mechanical needs (car repair, gasoline, etc.). However, in certain limited cases (drink, children's relaxation), it is difficult to say whether a stop is obligatory or not. Under these circumstances, it is the manner by which the stop is experienced (as a constraint or as a pleasure) which allows one to infer on the obligatory aspect.

This tendency towards dissociation between obligatory stops and pleasure stops is denoted by a disconnection on the following diagram:



Stop concept: Obligatory

Pleasure

The four stages which were presented constitute the main threads of the typology. The typology is the result of research into the dimension which seems most pertinent to explain all the practiced stops, especially the attitudes and judgments concerning the stops. Interviews and observations of wayside park users confirmed that it is the place accorded to the relax-pleasure aspect, which is essential.

In fact, it is a typology of individuals. This makes sense since cases drawn from the wayside park usage study confirmed that the stop depends on the individual rather than on the motive to stop. It should also be noted that this is not a typology for "drivers" only - one must not overlook that the attitudes of passengers are often crucial

to the strategy for stops.

In the section which follows, the typology will be utilized to account in a more refined manner, attitudes and judgments of motorists in stop matters. Also discussed is what can be deduced from the typology regarding the choice of site.

IV. STOPS PRACTICED, AND REACTIONS WITH RESPECT TO THE OFFER

It is to be noted that the discussion here has centered throughout on leisure drivers of light vehicles. On the routes studied, these motorists are potential users of all the stop possibilities available such as towns, villages, restaurants, bars, service stations, wayside parks. After all, the highways concerned are not cut-off from their environment. The typology which was presented, indicated that the way in which motorists utilize these stop possibilities varies from one individual to another. It is therefore in order to look at the three characterized groups defined by the typology, and to study in each case the stops practiced and the traveller's reaction with respect to what is being offered.

1. The Stops for the Three Groups of the Typology

1.1 Motorists who practice the obligatory stops

The policy of this group is to minimize (in numbers as well as duration) the stops in the course of the displacement. Considering the displacement as a "dead" time, their objective is to reach their destination as quickly as possible by limiting stops to needs of a purely utilitarian nature. Wayside park users in this group cited the following reasons for stopping:

- for fatigue: Stops due to fatigue are practiced almost entirely by

this group. In comparison, the stops made by the other groups, being lengthier and more frequent, allow some rest so that fatigue is least likely to appear.

- to attend to needs of the vehicle (cases here ranged from breakdowns such as a blown out tire, to lifting up the car hood for a checkup.
- because of children: Their presence conflicts with the objective of minimizing the "dead" time for the displacement. Consequently, the only stops practiced are those which do not go beyond what is judged to be indispensable to the relaxation of children.
- to eat: The tendency here is to eat rapidly. A simple parking turnout or a fast food restaurant would suffice in meeting their needs.
- to use washroom: This is a matter of a quick stop in nature or at a cafe or a gas station along the route.

Typical for this group, is a strategy for displacement which aims to eliminate some of the motives to stop. For instance, to avoid being pressured into numerous stops by the presence of children, one of the strategy which they adopt is to travel at night time. Moreover, this group tends to practice stops of the plurally oriented type - the intention here being to satisfy the different needs in just a single stop thereby again reducing the number of stops.

This group looks for stops on the axis of the displacement only - coming out of the trajectory is considered by them to be a waste of time. Staying on the route and utilizing the services it offers, the judgment they make on stop matters is limited to roadside stops only. Considering that they stop less frequently than the average distance of 184 km (114

miles) travelled between stops by wayside park users as a whole, it is not surprising that they estimate in a general way that there are enough stopping opportunities on the routes studied.

When they were asked to comment about a wayside park, they always replied with a functional judgment: If the stop fulfilled its utilitarian function, it was a good stop requiring nothing more. Indeed all they demand at a stopping place is a simple parking lot for a swift stop in safety, a toilet, and a little space for children to frolic.

1.2 Motorists who practice stops for pleasure

If one gains the impression that those practicing obligatory stops are like in a "tunnel", indifferent to any offer not in the immediate proximity to the trajectory, those practicing stops for pleasure are at the other extreme, taking time to give color and excitement to their trip.

This group often voluntarily seeks out their own place to stop outside of their trajectory such as in towns, restaurants, etc. In this manner, they hope to escape the noise, dust, and heavy traffic associated with certain roadside stops. In so far as most of their stops are made outside of their trajectory, one can understand why they are inclined to feel that there is no problem in finding a place to stop on the routes in question. In reality, their judgment bears not so much on roadside stop possibilities, but on openings leading off the highway.

Interviewed on their stop motives on rare occasions when they visited the wayside parks, it is not the functional aspects of the stops which are usually mentioned, but rather the relax-pleasure ones. Their

stops are often motivated by the needs to enjoy nature, to have fun barbecuing etc. Other practiced stops are to meet "interesting" people, or to dine in good restaurants.

Their exigencies in the "pleasure" field are such that it is very difficult for them to render pleasant certain functional stops (they do not gain relaxation from a gas stop). Moreover, what characterizes this group is the fact that, on top of the obligatory stops, they practice pleasure stops which do not fulfill any obligatory function.

What these users demand then, is merely exit possibilities (they would not particularly like freeways), and certain wayside stops in scenic areas.

1.3 The intermediary group: Motorists who seek to render the obligatory stop pleasant

These users typify the intermediate course between the opposite poles of the typology. In effect, they neither seek to minimize their stops systematically like the first group, nor to modify their displacement to make stops for "fun" as is the case for the latter group.

The stops they make correspond to the center of the typology insofar as these stops have utilitarian (obligatory) basis which they strive to render more pleasant. Their reasons for stopping at the wayside parks are commonly to eat (barbeque), use the washroom, give the children a break, check the vehicle, but also to relax in the sense of profiting from the occasion met. With regards to relaxation, it is necessary to make the following distinction between this group and the first group studied: For those practicing obligatory stops, it is not a simple rest-relaxation but rather fatigue which motivates the stop. However, for the group here, the occasions for stopping are such that

the relaxation is assured by the stops for other motives. In fact, through interviews and observations of this group, it was possible to see a juxtaposition of the functional motives and the pleasure motives.

This group constitutes the bulk of wayside park users. If they are inclined to prolong the length of their stops in pursuit of some enjoyment (most stops by wayside park users as a whole ranged from 30 minutes to one hour), they are not prepared to leave their trajectory and lose time for the lateral search of a place to stop.

These users are at the base of numerous complaints, by 44% of wayside users as a whole, that the Manitoba routes studied did not offer enough wayside stops. They distinctly constitute the potential customers for wayside park developments.

2. The Choice of a Stopping Place

2.1 What can be deduced from the typology

With respect to the choice of site, the typology is inadequate in differentiating the behaviour of motorists. However, it should be noted that some motorists characterized in the typology, leave their axis of displacement to find a place to stop: towns, villages, or restaurants which are less frequented by people who travel. Other motorists limit their stops to those on the trajectory.

2.2 The choice between towns and the open country

The typology does not give insight into the choice between towns and the open country. Considering pleasure stops for instance, one should not assume a type of pleasure which is "urban" rather than "rural". The choice here depends on individual preferences which are not tied to the typology. Nevertheless, two criteria somewhat intervene in the choice between towns and the open country:

- (a) The presence of children which increases the likelihood of choosing a picnic spot rather than a restaurant. As one wayside park user put it "Now that I have a child, I notice and appreciate it (the picnic site) more".
- (b) The cost consideration tends to favor the picnic rather than the restaurant. Many wayside park users interviewed, were of the opinion that since all these picnic facilities are provided free of charge, why not use them.

Finally some motorists come out of the city to get away from crowds or to get closer to nature. They would be least likely to stop in towns where there are more crowds. It should also be noted that of those people who look forward to be in Nature, some are less demanding than others in their "quality" of natural surroundings, and they may intermingle with natural elements rather than Nature herself. For instance, a stop in a parking space under the shade of a tree is believed by some to be already in nature.

Therefore, unless specific individual attitudes are known, it is not possible to say whether a motorist defined by the typology would choose to stop in urban areas or outside.

THE HEAVY TRUCK DRIVERS

For this group of drivers, the road is indeed the site of work and the displacement is the task to accomplish. Heavy truck drivers are subjected to strong constraints, including the physical characteristics of their vehicle and the traffic regulations concerning these vehicles, which prevent them from stopping where they wish.

The stops they make depend greatly on the following variables:¹

1. The significance of the displacement - the displacement is work and it is the frame of everyday living.
2. The function of the stop. Other than serving a utility function, the stop could be a meeting place to satisfy the need for interaction or mutual exchanges.
3. The characteristics of the vehicles (i.e. weight and length) and its implications with respect to safety.

These three points will now be elaborated on, and then it will be possible to indicate practical stopping places to meet truck drivers' needs.

1. The Significance of the Displacement

The fact that the displacement is work, brings into play certain constraints that fix the limits within which stops can be made. Constraints relating to work and stops, all depend on time problems and schedules, and on whether the driving is performed singularly or in a group:

1. The length of displacement which has to be respected, determines the frequency and the duration of the stops, and also the type of needs to be satisfied;

¹ National Road Safety Organization, The Interest and Contents of a Policy on Rest Areas on National Roads.

2. Depending on whether the displacement is accomplished by one person alone or by a group of two or more drivers, the alternate changing of drivers on the way, reduces the frequency of stopping, particularly for reasons of rest or sleep.

The effect of all these constraints is to introduce a certain number of compulsory stops directly linked to work and its proper functioning, but simultaneously to prevent more or less, a certain number of stops more linked to individual attitudes - Stops of the latter type could as well be linked to the previously discussed typology of those who travel for pleasure in passenger cars. The end result is a reduction of a significant number of stops and a uniformness in the types of stops practiced by heavy truck drivers. These stops can be regrouped in the following manner:

1. Stops linked to the vehicle itself: routine checkups, fuel stoppages, mechanical repairs.
2. Stops linked to work: "Regulatory" stops and stops to wait for the appropriate time for pickup or delivery of merchandise.
3. Stops linked to the habitual life cycle: eat, sleep, fatigue, use washrooms.

The stops outlined above are of a utilitarian or functional nature, but the last group of stops, in spite of its utilitarian character, also implies needs which are specifically tied to the category of truck drivers - needs which have greatly to do with the fact that these drivers spend the most time on the road. These particular needs will now be elaborated on.

For truck drivers, the satisfaction of needs linked to their life cycle, reveals a strong sense of regularity. This is due to the fact that their displacements are of a regular nature, as opposed to the displacements

of "leisure" drivers which are only occasional. Consequently, a truck driver on the road at mealtime, automatically stops to eat, or he will stop to sleep, because the repeated nature of his displacement indicates that he cannot allow himself to give up the satisfaction of these needs or to defer gratification.

Another type of exigency regarding the meal stops, has to do with the price of meals: If truck drivers take the meals regularly during their displacement, they cannot allow themselves the luxury of repeatedly going to restaurants where the prices are high.

The different needs which emerge naturally vary according to the characteristics of the displacement:

- the length of the displacement.
- the duration of the displacement.
i.e. a day's trip or one for several days.
- the type of transport: i.e. is the trip broken into a bunch of parcel deliveries to various customers, or is it a direct journey to meet one customer only.
- the time of the displacement i.e. effected during the day or at night.

On top of the need of a certain regularity, one can see the appearance, on the occasion pertaining to the satisfaction of these physiological type of needs, another type of need: Unlike the previous category of car drivers on pleasure trips, the truck drivers particularly seek to get out of the isolation in which they constantly find themselves - that is in front of the steering wheel of their vehicle. The stop therefore takes a special significance: It has to fulfill a function which in essence depends upon

the fact that for these drivers, the road is the frame of everyday life. This can be called the social function of the stop as discussed below.

11. The Social Function of the Stop

This is a major determinant in the choice and habit of stopping. It is important to the truck drivers that the stop should allow for:

1. encounters with other truck drivers and the possibility of mutual exchanges on the professional level on matters such as: work conditions, problems encountered, mechanical advice, the tricks of the trade, and possible work offers.
2. relationships with people in other walks of life: The truck drivers seek diversity in their social contacts on their journey, which helps them to forget about their work for a while.

To put it another way, the stop must allow the truck driver to get out of his isolation and to be reintegrated into the social sphere, while ensuring "shop talk" and social interaction in general.

111. The Characteristics of the Vehicle and its Implications with Respect to Safety

The characteristics of the vehicle give rise to physical and topographical constraints which greatly reduce the stop possibilities for heavy trucks. In particular, given the weight and length of the vehicle, certain stops are not practicable. Also considering the complexity of the vehicle and the slow manoeuvres to halt, certain stops are forbidden to truck drivers for safety reasons (i.e. collision) with respect to other users of the road

as well as themselves. Such safety problems underline the importance of the topographical situation of a stopping place - for instance, a wayside park situated at the bottom of a hill can make it difficult as well as dangerous for a truck joining the flow of traffic.

IV. Practical Stopping Places

The discussion up to now centered on the constraints encountered by heavy truck drivers which have the effect of reducing considerably the number of stops that they can make.

In brief, the variables which account for the often forbidden stops are:

1. Work requirements which do not allow truck drivers to move out of the trajectory of the displacement.
2. Traffic regulations which more or less forbids stops on certain roadsides (i.e. some wayside parks) and urban areas.
3. The physical characteristics of the vehicle and safety factors necessitating more spacious sites with greater accessibility.
4. The function of the stop - a stop may not be susceptible to fulfill a social function.
5. Economic reasons which prevents them from eating for example, in some restaurants.

All these things indicate that the most utilized stops for heavy truck drivers are roadside parkings and the highway cafés.

These two types of stops are characterized by the fact that they are always found in direct proximity to the trajectory of displacement. Given that these stops are more accessible and practical than others for diverse reasons already mentioned, the truck driver is sure to meet his work

colleagues and thus the vital social function of the stop is assured. The highway cafés fulfill all their expectations - reasonable prices, plentiful meals, and professional and social exchanges.

V. Reactions to Stop Offers and Expectations Regarding Equipment

Heavy truck drivers complain about the existing stop possibilities on the routes studied. They say that they have to look around for a long time to find a convenient spot, or because they have no choice, they are forced to stop in places which are open to risks, accidents, or penalties.

Indeed, of the four categories of highway users, truck drivers are the most demanding (with respect to roadside stops) for the following reasons:

- this perceived lack of stop possibilities is all the more great considering that the range of stop possibilities is very narrow for them.
- safety preoccupations render them particularly demanding.
- they spend most of the day time (or night time) on the road and the regular practice of stopping is an imperative need.

Whereas heavy truck drivers were seldom seen stopping at the wayside parks studied, it would appear that these drivers would make more use of these sites on the understanding that they are more spacious and erected in such a way that the trucks can move in and out without any risk with on-coming traffic - Large trucks observed at the wayside parks tended to park dangerously on the highway shoulders, due to the difficulty of negotiating the turn into the area. Moreover, they would be least likely to look for equipments (barbeques for instance), given that they would use wayside parks basically for relaxation and sleeping purposes. To this end, they demand that these areas be well separated from the highway for reasons of noise,

dazzling headlights from on-coming traffic, etc.

With regards to other types of stops that they make (i.e. highway cafés), they would like to see an enlargement of existing parking spaces in lieu of creating new stop points. This lack of space is particularly emphasized in view of the limited business hours of these services which entail the phenomenon of swift saturation and often results in hazardous stops on the highway itself.

It should be noted that if one considers on the one hand, the actual roadside facilities as on the routes studied, and on the other hand, the needs and constraints of heavy truck drivers, it can be seen that certain types of stops practiced by them are more often occasioned by the lack of appropriate stopping places¹ - This is why they are prone to make thoughtless stops sometimes.

¹ It is beyond the mandate of the Parks Division in Manitoba to provide rest area for commercial traffic.

PROFESSIONAL DISPLACEMENTS IN LIGHT VEHICLES

Professional displacements can be divided into two general types:

1. leaving home to the "zone of work" or the inverse of this;
2. moving from one place to another in the zone of work.

The second type of displacement is usually much shorter (say some dozens of kilometres at the most). It can be discarded from the study, given that these short trips don't lead in principle to any stops except for visiting customers.

In essence, a strategy for roadside stops for professionals travelling to the zone of work, has to be based on the fact that the journey is a dead time for them. Unlike heavy truck drivers, their job is not to drive - they are not paid on mileage. Rather, their job is to see their customers who are sometimes far from home. Therefore, the key point here is that the time spent on the road is neither the time to rest, nor directly productive time.

Hence, it is advantageous to characterize their displacements "professional" because one can better understand why the primary objective of this group is to minimize their displacement time. They are on the road to drive because any lost time on the road is indeed lost time for the job.

The habitual journeys to work have the following consequences:

1. These motorists are perfectly aware of the dangers of the route and thus they refrain from taking risks;
2. In addition, they know fully well how much time the journey takes, and they operate on a planned schedule.

They therefore travel at the maximum speed which they can use without endangering themselves or others. The speed must be regular and any-

thing which impedes this regularity, particularly the heavy trucks which they have to pass, is perceived in a negative way. This overtaking is viewed as a dangerous manoeuvre but seemingly compulsory (to get to work on time). This can lead to two extreme types of behaviours:

1. Not to stop in order to avoid being overtaken by vehicles already passed on the way;
2. During rush hours, to wait for say an hour or two in order to be able to move freely.

Being well organized, these motorists generally foresee right from the start, the necessary things for the journey (tank full of gas, etc.). And considering their habitual journeys and the previously mentioned attitudes relating to the displacement, it should be emphasized that these professionals seldom can be found stopping on their route - Results of the wayside park study show that only 3% of the users are on business trips. What they perceive as obligatory stops for food and work suffice in general - if there is no obligation, they do not stop. Moreover, for some, the driving itself is a form of relaxation.

Envisaging most often utilitarian stops (including stops to answer calls of nature, and fatigue) and nothing else, they have no desire to leave the route and seek an agreeable spot - they stay on their trajectory and resort to roadside stops if need be.

As a rule, only when their trips are especially long, do they stop for relaxation, but then, somewhat as in the case of heavy trucks, the stop must allow them to establish social contacts.

But they can hardly hope to find this social contact at a wayside stop. They come to realize that they cannot easily form contacts there, as it might appear suspicious to stop beside another car and start conversing

with its occupants.

To establish a contact, there has to be an "alibi" - the most common is surely a commercial relation with say, the bartender or the restaurant keeper. And so in order to converse with these people, they choose to stop at the bar (hotel, café) rather than at waysides.

Yet, it should be noted that for other than long journeys, merely their customers suffice to fulfill their needs for social contact.

To be mentioned in passing, is that a stop to eat is not always perceived as a lost time for the same reason as the travel time: Whereas the travel is viewed as non-work which is effectuated during working hours, the meal time is often non-work time. Indeed, quite often eating does not constitute part of the displacement. Instead, it could well take place when the traveller has to wait for the customers to receive him. Moreover, it is not uncommon to utilize the meal time to connect with another site of work, for which case the meal may be rushed (i.e. a sandwich may suffice).

To conclude, this group of drivers does not represent permanent potential users of wayside parks in other than incidental cases to quickly satisfy basic physiological needs. In effect, stopping at a roadside is a rare behaviour for them, given that it entails loss of work time. Nevertheless, of great importance to them is the opportunity to make urgent stops in cases of mechanical trouble, sudden drowsiness, bad weather, etc.

RECREATIONAL VEHICLE DRIVERS

What are generally classified as recreational vehicles, range from the most popular type, the travel trailer (designed to be towed), through small fold-out low profile trailers called camping or tent trailers which are not much more than tents on wheels.¹ Other types included in this category are truck campers (of the kind seen atop pick-up trucks), and motor homes which are built on a heavy duty truck chassis. Motor homes are the largest and most livable of the recreational vehicles.

The displacements carried out by this category of motorists, are leisure displacements. Some common aspects of the displacement of recreational vehicles and the leisure displacement in light vehicles, will be pointed out in this section. In a similar manner, attention will be directed to the physical characteristics of recreational vehicles which entail some needs with respect to roadside stops, analogous in certain ways to those enumerated by the heavy truck drivers. Moreover, the characteristic attitudes and behaviours of the recreational vehicle drivers, will be particularly emphasized.

1. The Types of Displacement and its Significance

Differing from leisure drivers of light vehicles for whom the displacement is more or less occasional, its purpose commonly being to reach a vacation site, recreational vehicle drivers are more "mobile" - typically having an itinerary for the various visiting sites, times of stops, etc.

Among recreational vehicle drivers themselves, it is possible

¹ Cady, "Just for the Fun of It", Highway User, Nov. 1972, p. 8.

to distinguish two types of displacement to which are linked different attitudes and behaviours with respect to stops:

1. The itinerary displacement. This touristic or vacation trip is generally broken into short stops, commonly in camping grounds or "touristic" places. The vacation aspect which predominates leads to the practice of "pleasure" stops as is defined by the typology (in the section on leisure drivers of light vehicles) - Hence there is generally a lack of interest in roadside stops such as wayside parks.

2. The direct displacement. This displacement is oriented towards attaining either one of the following objectives:

(a) to reach a camping ground or touristic site and to stay there during the entire vacation, the recreational vehicle becoming some kind of residence for the vacation.

or

(b) to reach the region or country where the itinerary displacement is to be made.

For both types of direct displacement, differences can be found in the motorist's conception of the displacement and the stops (as was laid out with respect to leisure drivers of light vehicles), the two extremes here being:

(i) Either that the journey is not really a part of the vacation - the vacation only starts when the visiting region is hit. Hence the motorist seeks to minimize the stops for the portion of the displacement which is direct.

or

(ii) The direct displacement is already a part of the vacation

and hence the motorist practices pleasure stops. But this does not mean that direct displacement is to be confused with itinerary displacement, since the trip in the first case is nonetheless oriented towards attaining the objective (site or region for the vacation). Moreover, for the direct displacement, motorists take the central highways.

Thus, for the direct displacement, the practiced stops are a function of the above mentioned conceptions. Likewise, as in the case of leisure displacement in light vehicles, these stops are also linked to the characteristics of the displacement: the length of the trajectory, presence of children, etc. (These points which were developed in the first part of the analysis, will not be reviewed here. There is also no need to return to the different motives to stop, to the extent that they were made explicit for drivers of light vehicles on pleasure trips).

11. The Stops Practiced, and Reactions to the Actual Offers

The stops practiced by recreational vehicle drivers, are not as diversified as those of leisure drivers of light vehicles (restaurant, bar, nature, wayside), primarily for the following reason: During their displacement, recreational vehicle drivers possess an equipment which gives them autonomy with regards to services provided on the road for needs such as to eat, drink, or use washroom. Hence recreational vehicle drivers stop less in restaurants or bars.

These motorists generally find it difficult to stop in urban areas, by virtue of the awkwardness of their vehicle. This is of great concern to them, since they have to stop from time to time in these centers for provisions and for motives related to touristic activity

(visit towns etc.).

What they wish then, are parking spots just before urban areas which will allow them for example, to unhitch their trailers and to drive into urban areas in their cars.

Besides, they generally stress that there is a shortage of roadside stop possibilities on the routes studied, especially as it concerns the physical characteristics of their vehicle (sufficiently large parkings etc.). In particular, they express negative opinions about wayside parks which they discover to be hazardous to manoeuvre into, or to turn their trailer around. Hence, they are always pre-occupied with safety considerations.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

The analysis of the four categories of highway users indicates that it is not always possible to satisfy each category of drivers by the same facilities: The function of a stop is not the same for professional displacement as for leisure displacement. Moreover, the possibility of a stop taking place is more or less imbued with diverse constraints - minimal in the case of leisure displacements but optimal in the case of heavy trucks. Also to be noted is that the so called "natural" rest areas along the routes studied (towns, service stations, restaurants, farmer's lane, etc.) are neither equally satisfying for all users nor always practical under certain circumstances (i.e. parking in towns is the most impractical for heavy trucks and recreational vehicles).

Because of the differential needs of leisure drivers of light vehicles, recreational vehicle drivers, and drivers of heavy trucks, presented successively will be guidelines for wayside park development for each of these categories. As to the category of professionals driving light vehicles to work, their needs to stop are very slight and susceptible to be satisfied by stopping places destined for leisure drivers of the same type of vehicles.

1. Guidelines with Respect to Light Vehicles

There are those travellers who utilize wayside parks on the axis of their displacement - that is those waysides which do not necessitate roundabouts with respect to their journey. This is the group that the study centered on, given that other motorists tend to stop in towns or restaurants, in small or narrow lanes outside the main road, etc., and interestingly enough, are disinterested in the type of wayside parks that are here in mind.

Those who are likely to stop at wayside parks, are appreciative

of the space to stretch their legs, the attractive grassy areas, the trees which enhance the look of the waysides and offer much needed shade, the water pump, barbeque facilities, and the idea of a washroom which is somewhat hidden. But what is absolutely vital to them is to have the necessary safety for both oncoming and outgoing vehicles at the exits and entrances of the wayside parks. Also essential, is for children to have space to frolic and run without risk. To achieve this, it is imperative that a wayside park should not simply be an enlargement of a passageway, but rather that it be made distinct with respect to the road. From this point of view, wayside parks (as opposed to simple turn-outs) having a thick screen of trees and shrubs separating them from traffic are well appreciated.

Also, the possibility of picnicking without losing sight of one's car is very important to many drivers.

In practice, the potential users of wayside parks, those who are reluctant to swerve from their journey, are not in favor of sophisticated equipment that goes beyond the basic essentials. Rather, they prefer to see more of "nature" on the side of the road (close to where they park their cars). But this reflects only what adults wish for themselves - it should be noted that swings or sand-boxes would be appreciated considering that they help to keep the children occupied for some time and equally important, they enable the parents to relax too while the children are busy playing.

A wayside park is not normally a place to meet people. It is more of a place where one can relax, keep one's distance. This need for isolation possibilities (without losing sight of one's car), should not mean that vast areas must be created for drivers to park their cars distantly from each other. Rather, discontinued spaces could be used,

preferably utilizing the natural irregularities of the site (symbolic limits) allowing each family to use part of the space in a manner that does not conflict with or inconveniences other users. This again does not mean transformation of the site into something like a maze for it might not be as attractive as one would like to think.

The provision of any facility for public rest brings with it the immediate and continuing obligation of maintenance. The public will respect a clean, well kept wayside park, but by the same token, it will litter and abuse a dirty, ill-kept one. Moreover, interviews with wayside park users revealed that they refrain from visiting certain sub-standard waysides. This points to the fact that the cleanliness of a site is a significant determinant of its utilization.

Regarding the frequency of stopping, an interesting observation is that wayside park users on the routes studied stopped on their way every 18.4 km (11.4 miles) on the average. However, this must certainly not be taken to mean that stops should be spaced 18.4 km apart. Rather the desirable spacing of stop opportunities should correspond approximately to an acceptable duration between the time the need is felt and the time one finds an adequate spot. Granted that this duration is in the order of about twenty minutes at the most, one obtains a corresponding distance of twenty to thirty kilometers.

But this distance can be increased with proper road signing. Indeed, a delay is always more tolerable when it is not accompanied by uncertainty. A person often accepts a longer delay if he knows what the duration would be and if he is sure that after a determined distance, he will find what he is looking for. To know beforehand the stop possibilities on one's route, allows one to knowingly choose a nearby stop, or on

the contrary, to continue - knowing when one can stop anew. Under these favorable circumstances, a distance of 40 kilometers (25 miles) between stop opportunities should generally suffice.

In this frequency estimation, stop possibilities in towns should be taken into consideration according to the criteria developed in Chapter Two under the "Spacing and Location of Sites".

It was noted that appropriate road signing probably makes it possible to space wayside stops further apart. The need for adequate signing is sufficiently called for. Indeed wayside parks are not always visible, and even if they are, motorists do not always identify them. Distinctive advance signing with arrows to indicate which side of the road the waysides are on, are needed to enable motorists to find these stops with less mental strain. These could take the form "Wayside Park 10 km ahead - Next Wayside 30 km". In this manner it would allow motorists to foresee what they will meet on the road, thereby enabling them to knowingly make decisions, instead of constantly being on the lookout.

Principles regarding signing are presented in Chapter Four under "Signs".

All the points which have been mentioned so far concern the intermediate group of the typology - those travellers who in making functional stops, avail themselves of these stops (i.e. the time which they spend in the wayside parks) to relax and enjoy nature. This is the group that shows marked interest in wayside park facilities and it is on them that the study focussed mainly.

For those motorists who do not like to stop, and do so only when it is absolutely necessary, that which suits most is a place

providing the opportunity to quickly satisfy a plurality of needs, thereby avoiding further stops. A gas station, for instance, could serve this purpose if it is equipped with a washroom, coffee and snack, vending machines, and possibly some minimal space for the children to stretch their legs a little, in safety. In this way, these motorists are able to minimize, at the same time, the number and the duration of the stops. Aside from that, in cases where they have to stop for a longer time, to catch some sleep for example, what suffices is a simple parking lot that affords safety to them. Indeed, at a wayside park, they would not look for equipment, and would be indifferent to the amenities that would make the site more pleasant.

Finally regarding those who prefer to stop in villages, the problem from the point of view of this study, is clearly more simple. Nevertheless, in times of great flux of travellers, it sometimes happens that all the visible parking spaces in the immediate surroundings of the road, are occupied. A parking lot at the entrance to the community where tourists would not compete with local drivers, may be useful.

Yet the above group, like motorists of the intermediate group, would also be appreciative of wayside parks in attractive locations (points of interest, wooded areas etc.).

2. Guidelines with Respect to Recreational Vehicles

Recreational vehicle drivers have similar needs and preferences as leisure drivers of light vehicles. Both face similar constraints or absence of constraints - i.e. neither one has a schedule like the professionals, but both commonly travel with their children, an essential factor in stopping and for exigencies in stop matters. Consequently,

the essence of what was said about leisure displacements in passenger cars, in particular the typology, applies also to recreational vehicles. Nevertheless, a major difference lies in the size or weight of the recreational vehicle, which leads to the same type of problems experienced by the heavy trucks.

Wayside parks are all the more necessary for recreational vehicles than for light vehicles, given that wild stoppages on their part are more restricted, and their needs in terms of safety are stronger. Considering their size, it is imperative for them to be sure of getting out safely from these places and vice versa. The recreational vehicle driver often hesitates to negotiate say, a lateral road because of the uncertainty in terms of not being able to do so. Therefore the manoeuvre to be made must be effective, and this effectiveness can be achieved for example by proper highway signing.

Furthermore, recreational vehicle drivers tend to be more demanding than motorists of light vehicles, with regards to the attractiveness of the setting in which they stop. They view their vehicle as their home, and it appears that they more or less choose their stops as if they would sojourn there for a lengthy period of time.

Finally, recreational vehicle drivers often stop in towns, not only to rest or visit, but also, and to a greater extent than private car drivers, to shop around for their basic necessities. The possibility of parking at the entrance to the town, within which they cannot stop, is more vital for recreational vehicles than for light vehicles.

3. Guidelines with Respect to Heavy Trucks

It has been noted that truck drivers, in their professional displacement, face some overbearing constraints which often imply very

long and tedious journeys. Yet in view of the fact that they spend the most time on the road, truck drivers often seek out contacts with their colleagues - unlike leisure drivers who tend to generally avoid contacts with others when stopping on their way.

Given the length of their itineraries, it could well be necessary for truck drivers to catch some sleep on their way. It should also be noted that the time or distance factor is critical for truck drivers, as they are required by law (in Manitoba for instance) to stop every two hours for a fifteen minute break and equipment check. No elaborate facilities are needed for these types of stops - the only requirement is the possibility to park in safety where one can rest or sleep in peace and quiet.

Roadside restaurants play a vital role not only for food consumption - the basic physiological necessity - but also for meeting fellow friends. Through this interaction with their colleagues, truck drivers become aware of the dangers of the profession, find something new and exciting, etc.

Truck drivers often complain about the small size of roadside parking which prevents them from stopping where they wish. From this standpoint, their contention is to call for the enlargement of existing parking lots in lieu of new parking locations.

The need for parking spaces is all the more important when seeking encounters: Since truck drivers like to stop at places where they could meet their colleagues, they cannot avoid the peak hours, given that it is only during these times that they can see some of them.

The highways do not always bring them on time to unload their merchandise. It is possible for the drivers to be fast, and as such, they are obligated to wait for the appropriate time outside the city or

town concerned. But parking spaces are uncommon at these locations. Therefore, as in the case of recreational vehicles, simple turnouts situated at the entrance to the town, would be useful.

Concluding Remarks

If the crowded wayside parks on the routes studied demonstrated anything, it is this: that these areas are not a luxury; they are an absolute necessity in this motor age. The analysis of the survey generally supports the idea that roadside rests contribute to highway safety by providing motorists with the opportunity to rest safely away from moving traffic. Examples follows:

1. The survey showed that 80% of wayside park users utilized the stop to provide driver relief by short or long rest (or change of drivers).
2. Over 3 1/2% of wayside park users had been driving in excess of 8 hours, and a few had been driving the whole night before.
3. Users commonly checked their vehicles as a precautionary measure, and some found vehicle problems.

Motorists who do not stop at wayside parks, are of great importance in an analysis of data concerning motorists who do stop. A California study¹ interviewing drivers not only at various stopping places, but also at selected roadblocks, showed that drivers who stop at wayside parks, as compared with those that pass, generally travel more kilometers since awakening, have more kilometers yet to cover, travel more kilometers since the last stop, and have more kilometers to go to the next stop.

1

California Department of Public Works, Evaluation Study-Safety Aspects of Roadside Rest Program.

Wayside parks are not equivalent in their effect. The survey data provides evidence that different wayside parks are utilized for different purposes and at different rates. Keyes wayside, for example, has the highest proportion of motorists who turn in to rest.

A wayside park is a part of a configuration of rest opportunities in a context of travel patterns between major control points such as large towns. By adding wayside park(s), one modifies that configuration to decrease the average distance travelled between stops by attempting to change prevailing patterns of driving and stopping.

The question is how to do this most economically on the basis of cost versus safety effectiveness. Focussing exclusively on fatigue-related safety benefits of rest stops, the following procedure is recommended for locating wayside parks:

1. Select length of highway for study. A segment of highway should be selected which is 300 kilometers or more in length, along which a significant percentage of trips are over 300 kilometers long. The length of highway selected, should be bounded by major origin-destination points (i.e. cities), and the road should have an Average Daily Traffic (ADT) of at least 1000 vehicles.

A rest stop intervention is probably plausible on a stretch of roadway that has an annual accident rate that exceeds the expected accident rate for the particular type of road and ADT, or an accident rate that is increasing annually, or has an ADT that is increasing faster than 5% a year, or has a high proportion of fatigue-type accidents, or any combination of these factors. In determining whether fatigue significantly influences the accident rate for the

particular length of highway, anecdotal evidence from highway district personnel and law enforcement officers should also be considered.

2. Conduct survey of travellers' driving patterns. By interviewing drivers at various stopping places and at selected roadblocks, information regarding the history of the day's drive should be obtained. The logic of the questionnaire would be to place the rest stop as a point somewhere between the beginning of the day's drive and its end. Emphasis should be given for what had happened prior to the rest stop, and also what would happen for the remainder of the journey. In brief, the questionnaire should cover the whole driving day, and the motorist's accomplished and planned behavior for the day.

To get a comprehensive picture of the driving patterns, the survey should gather information at different points on the highway (say, every 100 km), at different hours of the day, different days of the week, and different seasons.

3. Survey the route. As has been stressed in this thesis, rest opportunities of all kinds, not only wayside park stops, must be considered to determine the average distance between stops. It is therefore necessary to survey the route to locate all rest opportunities and to rate them on a simple scale (i.e. unsatisfactory, good, excellent) with respect to the types of facilities, who stops and why, and how many stop and for how long. This information can be obtained from wayside park users such as were interviewed in this thesis, or perhaps from people who serve travellers at local stops, highway district personnel, or law enforcement officers.

4. Summarize existing situation. A composite configuration should be

prepared for the route as it exists (or for anticipated major changes), showing lengths of trips, major origin-destination points, and rest stops and their use. The average distance travelled between rests should be determined.

5. Design an improved configuration. Various interventions can be considered to effectuate a more desirable driving and stopping pattern. If the prevailing average distance between rests is between 250 and 300 km, a priority of one might be assigned; if between 200 and 250 km, a priority of two; and if between 150 and 200 km, a priority of three. Such priorities express an order of opportunity for improving highway safety by wayside park intervention. The interventions could either provide extra rest opportunities or enhance the utilization of existing opportunities. It should be noted that rest stops can prompt not only positive effects but also negative ones, as when the stops are too widely spaced and drivers need to "stretch" beyond the distances they comfortably cover (reduced spacing could help).

Whereas the preceding recommendations are limited to fatigue-related safety benefits of rest stops, other benefits are possible and likely, and should be weighed in locating additional wayside parks. But with regards to the availability of wayside parks for emergency use, there is clearly no way to locate these areas for the chance auto breakdown, unless there is a direct line of communication (unknown here) with Lady Luck. Of course, if a motorist has minor engine trouble, he can get to an emergency wayside stop. But if he has real trouble, that wayside stop will never be in the right place. Hence there are no substitutes for continuous highway shoulders wide enough to accommodate a

vehicle while undergoing emergency repairs.

Another facet of the problem of creating an effective network of stop opportunities, is maintenance. Maintenance is a factor which must be considered at the outset. It influences each aspect - the acquisition, the design, the development, and the operation of wayside parks.

The maintenance consideration begins with the acquisition of a site. Unless the prospective area is in itself attractive, public respect and use will be more limited than in locations with pleasing natural features. Maintenance also influences the location and arrangement of the parking areas, service buildings, etc., which if not planned for convenience in use, will require more maintenance during the life of an area since the public will try to find a more convenient way. If buildings, table and benches, signs, drinking fountains, and the like, are not attractive or designed with durability which wins respect, they will be abused and cause high maintenance.

In operating practice, should damaged windows, doors, water closets etc., not be immediately repaired, or should the pick-up and clean-up services not be adequate, the public would likely express its disgust or disregard in every offensive manner. It should be emphasized that the converse of this is generally true also.

To achieve an effective wayside park network, it is also recommended that an information program be initiated to insure that travelling frustrations about food, lodging, medical care, gas, and the like, are successfully avoided. Such a program to provide drivers with "Motorists Service Information", has been established in the State of Indiana.¹ It consists of two elements: First a highway sign, specifically mentioning Motorists Service Information, is located near the entrance to the way-

side park to signal to passing motorists that travel information is available at an upcoming wayside park.

The second element which is also the most important, is the Motorist Service Information display within the wayside park building (i.e. comfort station). The display could consist of a large strip map scaled say 3 cm to 1 kilometer which will include the highway from the wayside park where the display is located to the next wayside park, the provincial border, or the next major metropolitan area. The main feature of the map would be the use of color coded cards placed approximately in scale position which would identify businesses by type and company name. Using the accompanying legend, the motorist can select and locate the services he needs.

¹ Indiana State Highway Commission, "Motorists Service Information in Indiana" in Highway Focus.

A P P E N D I C E S

APPENDIX A: DESIGN FOR THE HANDICAPPED

Parking Spaces - should be 3 3/4 meters wide (12 ft.) to allow room at the side of the car for manoeuvring a wheelchair to or from the spaces.

- should avoid the need to pass behind parked cars.

Water Closets - seat should be 50 cm. high (20 in.)

- wall-hung type is most preferable.
- if floor supported, under-structure should not interfere with the close approach of the wheel chair.

Lavatories - aprons should be narrow to permit close approach

- hot water pipes should be placed (or insulated) so they cannot burn wheel chair occupant, particularly those without sensations.

Public Telephones - most disabled persons cannot use public telephone booths.

Dial and handset should be within reach of the person in wheel chair.

- a phone may be especially equipped for those with a hearing impairment. Such a phone could be used by all.

APPENDIX B: DESIGN OF COMFORT STATION

Within the toilet rooms, use of functional, utilitarian, and vandal resistant materials should be the first consideration. Instead of using wood as in older toilets, toilet partitions should preferably have metal frames with metal or metal-covered wood panels and doors. Partitions should be secured to a wall and the floor or to a wall and the ceiling. Ceilings should preferably be panelled with a lightweight, fire resistant material. Fixtures and appliances should preferably be of metal which is recessed or flush as much as possible with other surfaces. Electric hand dryers should be favored over paper or linen towels because of cleaning and maintenance

considerations.

Storage rooms for supplies and equipment should be burglar and fire resistant. Heating or air conditioning units may perhaps be supported from the ceilings to allow more use of storage and floor space.

APPENDIX C: DESIGN OF TABLES AND BENCHES

Portable types of tables and benches should be favored over those which are permanently set in the ground, to provide flexibility in use. Table and benches should preferably be of heavy smooth finished timber or sawn lumber. The weight should prevent easy moving by less than two persons. Stone or concrete tables and benches are undesirable since they are too heavy to be readily shifted by maintenance men.

In humid areas, decay-resistant timber should be used (i.e. cedar). In dry areas, any good timber found in the locality may be adequate.

Surfaces should be smoothed and sharp edges and corners should be beveled to protect clothing. 1/3 cm to 2/3 cm (1/8 to 1/4 inch) space should be left between surface planking to facilitate water runoff from table and benches.

Table and bench units should be large enough to accommodate four to eight persons. Banquet tables are not desirable.

It is important to allow for flexibility in design and materials to make best use of local materials at specific sites.

APPENDIX D: DESIGN OF FIREPLACES

Fireplaces should be simple in design consisting preferably of concrete or native stone. Bricks or stones which are not heat-resistant should be avoided. If grates are movable, they should be chained to prevent vandalism. The design should focus on economy in the use of wood or charcoal:

Height of grates should preferably not be more than 15 to 20 cm. (6 to 8 inches) above the bottom of the firebox. Barbeque pits, multiple stove design, and other cooking facilities to serve large crowds of people, should not be provided.

APPENDIX E: DESIGN OF ADVANCE SIGNING

A wayside park sign should be designed with a border of the same color as the legend, to outline its distinctive shape so as to make it more easily recognized, and to give it an attractive finished appearance. For signs smaller than 3 meters by 2 meters, the border should have a width of approximately 4 centimeters.

The signs may employ white letters and symbols on a green background but a uniform policy should be followed. The sign should be reflectorized because of the need for full-time effectiveness.

A wayside park sign should be individually erected on separate posts or mountings except where one sign supplements another. For ground installation, the sign should be erected at a minimum height of 2 meters above the edge of the pavement to the bottom of the sign.¹ But if a secondary sign is mounted below the sign, the major sign should be no less than 2 1/2 meters above the level of the pavement edge. The horizontal clearance to the sign should be no less than one meter beyond the edge of the roadway shoulder.

The sign face should be oriented by a slight turning away from the roadway in order to avoid specular reflection. However, this adjustment should be kept small so that adequate reflection will be maintained.

¹ AASHO, Manual for Signing and Pavement Marking of the National System of Interstate and Defence Highway. p. 13.

APPENDIX F:

WAYSIDE PARKS QUESTIONNAIRE

Location of interview: _____
Date of interview: _____ Time: _____

1. Where is your home? Town/City _____
(If you live on a farm, please state the town or city nearest you).
Prov./State _____

2. Are you on an overnight trip away from home?
Yes [] No []

If yes: Where did you spend last night?

a) at Home []
b) Town/City/Campground/Park _____
Prov./State _____

Where do you plan to spend tonight?

a) At Home []
b) Town/City/Campground/Park _____
Prov./State _____

If no: What is the destination of your trip?

a) Town/City _____
Prov./State _____
b) Other (please specify) _____

What is the total distance from your starting point to your destination for today?
_____ miles

3. At what time today did you start this trip? _____

4. At what average speed are you travelling? _____

5. Did you stop anywhere today between your starting point and here?
Yes [] No []

If yes, list where you stopped, and indicate with (✓) the purpose of your stop.

	Location	Purpose						
		Washroom	Rest	Picnic	Eat	Gas	Info.	Other
First Stop								
Second Stop								
Third Stop								
Additional Stops, If Any								

How many miles is your previous stop from here? _____ miles

6. How long are you stopping here?

- a) 15 minutes or less ☐
- b) 15 - 30 minutes ☐
- c) 30 minutes - 1 hour ☐
- d) more than 1 hour ☐
- e) overnight ☐

7. For what purpose are you stopping here?

- a) Use of washroom facility ☐
- b) Short rest ☐
- c) Picnic ☐
- d) Long rest ☐

8. How would you rate the facilities in this wayside park?

- a) Unsatisfactory ☐
- b) Fair ☐
- c) Good ☐
- d) Very Good ☐
- e) Excellent ☐

Any comments:

9. What is the total number of people in your vehicle? _____ persons

10. If your trip for:

- a) Pleasure ☐
- b) Business ☐
- c) Pleasure & Business ☐
- d) Other ☐

11. Do you feel that the road signage for wayside parks is adequate in Manitoba? Yes ☐ No ☐

12. Have there been an adequate number of wayside parks on your route in Manitoba? Yes ☐ No ☐

T A B L E S

DESIGN LENGTHS OF SPEED-CHANGE LANES

All Main Highways

TABLE 1

Design Speed of Turning Roadway Curve, MPH.		15	20	25
Minimum Curve Radius, Feet		50	90	150
Design Speed of Highway, MPH	Length of taper, feet	Total Length of Deceleration Lane, including taper, feet:		
40	190	300	275	250
50	230	400	375	350
60	270	500	475	450
65	290	550	525	500
70	300	575	550	550
Design Speed of Highway, MPH.	Length of Taper, Feet	Total Length of Acceleration Lane, including taper, feet:		
40	190	325	250	225
50	230	700	625	600
60	270	1125	1075	1000
70	300	1550	1500	1400

NOTE: The above values apply to Flat Grades of 2% or less. Deceleration distances should be longer on downgrades and shorter on upgrades, while, acceleration distances should be longer on upgrades and shorter on downgrades, as shown in Table 25. Moreover, the above lengths are based on operation of passenger vehicles. Whereas trucks require longer distances to decelerate for an equal difference in speed, longer lanes are not justified since the average speed of trucks are generally lower than those of light vehicles.

RATIO OF LENGTH OF SPEED-CHANGE LANES ON GRADE TO LENGTH ON LEVEL

TABLE 2

DECELERATION LANES

Design Speed of Highway, M.P.H.	Ratio of length on grade to length on level* for:	
All	3 to 4% upgrade 0.9	3 to 4% downgrade 1.2
All	5 to 6% upgrade 0.8	5 to 6% downgrade 1.35
ACCELERATION LANES		
Design Speed of Highway, M.P.H.	Ratio of length on grade to length on level* for: Design speed of turning roadway curve, mph.	
	20 30	All speeds
	3 to 4% upgrade	3 to 4% downgrade
40	1.3 1.3	0.7
50	1.3 1.4	0.65
60	1.4 1.5	0.6
70	1.5 1.6	0.6
	5 to 6% upgrade	5 to 6% downgrade
40	1.5 1.5	0.6
50	1.5 1.7	0.55
60	1.7 1.9	0.5
70	2.0 2.2	0.5

* Ratio from this table multiplied by length in Table 24 gives length of speed-change lane on grade.

For instance, for a highway with a design speed of 60 m.p.h., a turning roadway curve with a design speed of 30 m.p.h., and a 5% upgrade, the length of the deceleration lane would be $425 \times 0.8 = 340$ feet, and the length of the acceleration lane would be $900 \times 1.9 = 1710$ feet.

AVERAGE DISTANCE TRAVELLED BETWEEN STOPS

TABLE 3

WAYSIDE	OUT-OF-PROVINCE		IN-PROVINCE		OVERALL	
	Number of stops	Average Distance in km(miles)	Number of stops	Average Distance in km(miles)	Number of stops	Average Distance in km(miles)
Seton	31	258.6(160.6)	10	118.0(73.3)	41	224.3(139.3)
Keyes	21	197.9(122.9)	12	144.3(89.6)	33	178.4(110.8)
Norquay	20	196.9(122.3)	19	93.4(58.0)	39	146.5(91.0)
Kirkella	32	175.0(108.7)	10	205.6(127.7)	42	183.5(114.0)
Hargrave	34	192.1(119.3)	7	135.7(84.3)	41	182.4(113.3)
Overall Average	138	204.6(127.1)	58	132.7(82.4)	196	183.4(113.9)

DISTRIBUTION OF DISTANCES TRAVELLED BETWEEN STOPS

TABLE 4

WAYSIDE	DISTANCES IN MILES									
	0-49	50-99	100-149	150-199	200-249	250-299	300-349	350-399	400-449	Total
<u>Seton</u>										
Out-of-Prov.	4	5	5	5	7	4			1	31
In-Prov.	2	5	3							10
Total	6	10	8	5	7	4			1	41
<u>Keyes</u>										
Out-of-Prov.	3	3	6	5	3	1				21
In-Prov.	1	2	9							12
Total	4	5	15	5	3	1				33
<u>Norquay</u>										
Out-of-Prov.	6	2	2	8	1		1			20
In-Prov.	11	4	3	1						19
Total	17	6	5	9	1		1			39
<u>Kirkella</u>										
Out-of-Prov.	9	8	3	7	4	1				32
In-Prov.		4	2	2	2					10
Total	9	12	5	9	6	1				42
<u>Hargrave</u>										
Out-of-Prov.	7	12	5	4	2	2	1	1		34
In-Prov.	4		1	2						7
Total	11	12	6	6	2	2	1	1		41
<u>Total</u>										
Out-of-Prov.	29	30	21	29	17	8	2	1	1	138
In-Prov.	18	15	18	5	2					58
Total	47	45	39	34	19	8	2	1	1	196
%	23.9	23.0	20.0	17.3	9.7	4.1	1.0	.5	.5	100%

AVERAGE DISTANCE TRAVELLED BETWEEN PREVIOUS STOP AND WAYSIDE

TABLE 5

WAYSIDE	OUT-OF-PROVINCE		IN-PROVINCE		OVERALL	
	Vehicles	Average number of km(miles)	Number of Vehicles	Average number of km(miles)	Number of Vehicles	Average number of km(miles)
Seton	19	249.8(155.2)	5	111.4(69.2)	24	221.1(137.3)
Keyes	12	201.7(125.3)	10	143.6(89.2)	22	175.3(108.9)
Norquay	12	221.2(137.4)	15	88.4(54.9)	27	147.5(91.6)
Kirkella	18	205.4(127.6)	7	220.7(137.1)	25	209.8(130.3)
Hargrave	20	179.0(111.2)	4	153.0(95.0)	24	174.7(108.5)
Overall Average	81	211.1(131.1)	41	133.5(82.9)	122	185.0(114.9)

DISTRIBUTION OF DISTANCES TRAVELLED BETWEEN PREVIOUS STOP AND WAYSIDE

TABLE 6

WAYSIDE	DISTANCES IN MILES								Total
	0-49	50-99	100-149	150-199	200-249	250-299	300-349	350-399	
<u>Seton</u>									
Out-of-Prov.	2	4	3	2	5	3			19
In-Prov.	1	2	2						5
Total	3	6	5	2	5	3			24
<u>Keyes</u>									
Out-of-Prov.	1	2	5	1	2	1			12
In-Prov.	1	1	8						10
Total	2	3	13	1	2	1			22
<u>Norquay</u>									
Out-of-Prov.	3	1	1	5	1		1		12
In-Prov.	9	4	1	1					15
Total	12	5	2	6	1		1		27
<u>Kirkella</u>									
Out-of-Prov.	4	4		6	3	1			18
In-Prov.		3		2	2				7
Total	4	7		8	5	1			25
<u>Hargrave</u>									
Out-of-Prov.	5	8	1	2	2		1	1	20
In-Prov.	2			2					4
Total	7	8	1	4	2		1	1	24
<u>Total</u>									
Out-of-Prov.	15	19	10	16	13	5	2	1	81
In-Prov.	13	10	11	5	2				41
Total	28	29	21	21	15	5	2	1	122
%	23.0	23.8	17.2	17.2	12.2	4.1	1.6	.8	100%

AVERAGE LENGTH OF TIME SPENT TRAVELLING BETWEEN STOPS

TABLE 7

WAYSIDE	OUT-OF-PROVINCE		IN-PROVINCE		OVERALL	
	Number of stops	Average time	Number of stops	Average time	Number of stops	Average time
Seton	29	2/hrs.43min.	10	1/hr.15min.	39	2/hrs.20min.
Keyes	21	2/hrs. 7min.	12	1/hr.32min.	33	1/hr. 55min.
Norquay	20	2/hrs. 2min.	20	0/hr.56min.	40	1/hr. 29min.
Kirkella	32	1/hr. 46min.	10	2/ hrs.13min.	42	1/hr. 53min.
Hargrave	32	2/hrs. 2min.	7	1/hr.29min.	39	1/hr. 56min.
Overall Average	134	2/hrs.8min.	59	1/hr.23min.	193	1/hr. 55min.

DISTRIBUTION OF AVERAGE LENGTH OF TIME SPENT TRAVELLING BETWEEN STOPS

TABLE 8

WAYSIDE	LENGTH OF TIME								Total
	0-59 min.	1 hr.-1/hrs.59min.	2 hrs.-2/hrs.59min.	3 hrs.-3/hrs.59min.	4 hrs.-4/hrs.59min.	5 hrs.-5/hrs.59min.	6 hrs.-6/hrs.59min.	7 hrs.-7/hrs.59min.	
<u>Seton</u>									
Out-of-Prov.	6	4	8	7	5		1	1	32
In-Prov.	2	6	1						9
Total	8	10	9	7	5		1	1	41
<u>Keyes</u>									
Out-of-Prov.	5	4	8	2	2				21
In-Prov.	3	8	1						12
Total	8	12	9	2	2				33
<u>Norquay</u>									
Out-of-Prov.	5	3	8	3		1			20
In-Prov.	13	4	2	1					20
Total	18	7	10	4		1			40
<u>Kirkella</u>									
Out-of-Prov.	10	8	6	6	2				32
In-Prov.		5	2	3					10
Total	10	13	8	9	2				42
<u>Hargrave</u>									
Out-of-Prov.	12	8	6	4	2	2			34
In-Prov.	4		2	1					7
Total	16	8	8	5	2	2			41
<u>Total</u>									
Out-of-Prov.	38	27	36	22	11	3	1	1	139
In-Prov.	22	23	8	5					58
Total	60	50	44	27	11	3	1	1	197
%	30.5	25.4	22.3	13.7	5.6	1.5	.5	.5	100%

AVERAGE LENGTH OF TIME SPENT TRAVELLING BETWEEN
PREVIOUS STOP AND WAYSIDE

TABLE 9

WAYSIDE	OUT-OF-PROVINCE		IN-PROVINCE		OVERALL	
	Number of Vehicles	Average time	Number of Vehicles	Average time	Number of Vehicles	Average time
Seton	19	2/hrs.38min.	5	1/hr.10min.	24	2/hrs.20min.
Keyes	12	2/hrs.11min.	10	1/hr.31min.	22	1/hr. 53min.
Norquay	12	2/hrs.19min.	15	56min.	27	1/hr. 32min.
Kirkella	18	2/hrs. 5min.	7	2/hrs.21min.	25	2/hrs.9min.
Hargrave	20	1/hr. 50min.	4	1/hr. 27min.	24	1/hr.46min.
Overall Average	81	2/hrs.13min.	41	1/hr 23min.	122	1/hr.56min.

DISTRIBUTION OF AVERAGE LENGTH OF TIME SPENT TRAVELLING BETWEEN PREVIOUS
STOP AND WAYSIDE

TABLE 10

WAYSIDE	LENGTH OF TIME								Total
	0-59 min.	1 hr. - 1/hr.59min.	2 hrs.- 2/hrs.59min.	3 hrs.- 3/hrs.59min.	4 hrs.- 4/hrs.59min.	5 hrs.- 5/hrs.59min.	6 hrs.- 6/hrs.59min.	7 hrs.- 7/hrs.59min.	
<u>Seton</u>									
Out-of-Prov.	3	3	3	6	4				19
In-Prov.	2	3							5
Total	5	6	3	6	4				24
<u>Keyes</u>									
Out-of-Prov.	3	3	3	1	2				12
In-Prov.	2	8							10
Total	5	11	3	1	2				22
<u>Norquay</u>									
Out-of-Prov.	2	2	6	1		1			12
In-Prov.	10	3	1	1					15
Total	12	5	7	2		1			27
<u>Kirkella</u>									
Out-of-Prov.	4	5	3	5	2				19
In-Prov.		3	1	3					7
Total	4	8	4	8	2				26
<u>Hargrave</u>									
Out-of-Prov.	10	3	3	2		2			20
In-Prov.	2		1	1					4
Total	12	3	4	3		2			24
<u>Total</u>									
Out-of-Prov.	22	16	18	15	8	3			82
In-Prov.	16	17	3	5					41
Total	38	33	21	20	8	3			123
%	30.9	26.8	17.1	16.3	6.5	2.4			100%

OVERNIGHT OR DAY TRIP AWAY FROM HOME

TABLE 11

WAYSIDE	Overnight trip	Day Trip	Total Respondents
Seton	26 100%	0 0%	26 100%
Keyes	24 96.0%	1 4.0%	25 100%
Norquay	21 72.4%	8 27.6%	29 100%
Kirkella	27 96.4%	1 3.6%	28 100%
Hargrave	26 96.2%	1 3.7%	27 100%
Total	124 91.9%	11 8.1%	135 100%

DURATION OF STAY AT WAYSIDE PARK

TABLE 12

WAYSIDE	LENGTH OF TIME					TOTAL
	15 min. or less	15 min.-30 min.	30 min.-1 hr.	more than 1 hr.	over-night	
<u>Seton</u>						
Out-of-Prov.	4	8	3	5	0	20
In-Prov.	0	2	3	1	0	6
Total	4	10	6	6	0	26
<u>Keyes</u>						
Out-of-Prov.	0	6	5	2	0	13
In-Prov.	1	1	9	0	0	11
Total	1	7	14	2	0	24
<u>Norquay</u>						
Out-of-Prov.	2	2	9	0	0	13
In-Prov.	1	3	8	4	0	16
Total	3	5	17	4	0	29
<u>Kirkella</u>						
Out-of-Prov.	3	2	13	3	0	21
In-Prov.	1	3	2	1	0	7
Total	4	5	15	4	0	28
<u>Hargrave</u>						
Out-of-Prov.	3	6	9	4	1	23
In-Prov.	0	1	3	0	0	4
Total	3	7	12	4	1	27
<u>Total</u>						
Out-of-Prov.	12	24	39	14	1	90
In-Prov.	3	10	25	6	0	44
Total	15	34	64	20	1	134
%	11.2	25.4	47.8	14.9	.7	100.0

REASONS FOR STOPPING AT WAYSIDE PARK

TABLE 13

WAYSIDE	Use of Toilet	Short Rest	Picnic	Long Rest	Other	Total
<u>Seton</u>						
Out-of-Prov.	13	18	15	1	0	47
In-Prov.	4	3	4		1	12
Total	17	21	19	1	1	59
<u>Keyes</u>						
Out-of-Prov.	10	9	11	2		32
In-Prov.	10	12	10			32
Total	21	21	21	2		64
<u>Norquay</u>						
Out-of-Prov.	4	10	11			25
In-Prov.	4	6	13	1		24
Total	8	16	24	1		49
<u>Kirkella</u>						
Out-of-Prov.	17	16	16	3		52
In-Prov.	4	5	6	1		16
Total	21	21	22	4		68
<u>Hargrave</u>						
Out-of-Prov.	12	16	18	3		49
In-Prov.	3	3	3			9
Total	15	19	21	3		58

AVERAGE SIZE OF THE TRAVELLING GROUP

TABLE 14

WAYSIDE	OUT-OF-PROVINCE		IN-PROVINCE		OVERALL	
	Number of Vehicles	Average Group Size	Number of Vehicles	Average Group Size	Number of Vehicles	Average Group Size
Seton	19	3.1	5	4.0	24	3.3
Keyes	13	4.3	12	3.3	25	3.8
Norquay	12	2.8	16	3.8	28	3.4
Kirkella	21	3.2	7	5.6	28	3.8
Hargrave	21	3.4	4	3.0	25	3.4
Overall Average	86	3.3	44	3.9	130	3.5

PURPOSE OF THE TRIPS

TABLE 15

WAYSIDE	PURPOSE OF TRIP				TOTAL
	Pleasure	Business	Pleasure & Business	Other	
<u>Seton</u>					
Out-of-Prov.	17	1	1		19
In-Prov.	3		1		4
Total	20	1	2		23
<u>Keyes</u>					
Out-of-Prov.	13	1		3	17
In-Prov.	10	1	1		12
Total	23	2	1	3	29
<u>Norquay</u>					
Out-of-Prov.	13				13
In-Prov.	15		1		16
Total	28		1		29
<u>Kirkella</u>					
Out-of-Prov.	20		1		21
In-Prov.	7				7
Total	27		1		28
<u>Hargrave</u>					
Out-of-Prov.	19	1	1		21
In-Prov.	4				4
Total	23	1	1		25
<u>Total</u>					
Out-of-Prov.	82	3	3	3	91
In-Prov.	39	1	3		43
Total	121	4	6	3	134
%	90.3	3.0	4.5	2.2	100

AVERAGE DISTANCE EXPECTED TO BE COVERED FOR THE DAY

TABLE 16

WAYSIDE	OUT-OF-PROVINCE		IN-PROVINCE		OVERALL	
	Sample Size	Average Distance km(miles)	Sample Size	Average Distance km(miles)	Sample Size	Average Distance km(miles)
Seton	17	745.4(463)	6	362.3(225)	23	645.6(401)
Keyes	11	526.5(327)	12	421.8(262)	23	471.7(293)
Norquay	12	473.3(294)	16	249.6(155)	28	346.2(215)
Kirkella	16	616.6(383)	7	589.3(366)	23	608.6(378)
Hargrave	17	648.8(403)	5	397.7(247)	22	592.5(368)
Overall Average	73	558.7(347)	46	331.7(206)	119	470.1(292)

ADEQUACY OF PRESENT NUMBER OF WAYSIDE PARKS IN MANITOBA

TABLE 17

WAYSIDE	OUT-OF-PROVINCE			IN-PROVINCE			TOTAL					
	Yes	No	Don't Know	Yes	No	Don't Know	Yes	%	No	%	Don't Know	%
Seton	11	8	1	3	2		14	56%	10	40%	1	4
Keyes	5	7	1	7	5		12	48	12	48	1	4
Norquay	6	7		7	8	1	13	44	15	52	1	3
Kirkella	14	4	3	4	3		18	64	7	25	3	11
Hargrave	8	13	2	2	2		10	37	15	56	2	7
Total	44	39	7	23	20	1	67	50	59	44	8	6

IS ROAD SIGNAGE FOR WAYSIDE PARKS ADEQUATE IN MANITOBA?

TABLE 18

WAYSIDE	OUT-OF-PROVINCE		IN-PROVINCE		TOTAL			
	Yes	No	Yes	No	Yes	%	No	%
Seton	10	10	4	1	14	56	11	44
Keyes	11	1	9	1	20	91	2	9
Norquay	9	4	12	4	21	72	8	28
Kirkella	13	8	6	1	19	68	9	32
Hargrave	17	5	1	3	18	69	8	31
Total	60	28	32	10	92	71	38	29

ADEQUACY OF WAYSIDE PARK FACILITIES

TABLE 19

WAYSIDE	RATING					TOTAL
	Unsatisfactory	Fair	Good	Very Good	Excellent	
<u>Seton</u>						
Out-of-Prov.		2	7	5	7	21
In-Prov.		2	1	3	3	6
Total		4	7	6	10	27
<u>Keyes</u>						
Out-of-Prov.			4	4	3	11
In-Prov.		1	7	3	1	12
Total		1	11	7	4	23
<u>Norquay</u>						
Out-of-Prov.	1	1	6	2		10
In-Prov.	1	1	9	1	1	13
Total	2	2	15	3	1	23
<u>Kirkella</u>						
Out-of-Prov.		2	4	9	4	19
In-Prov.		1	4	2		7
Total		3	8	11	4	26
<u>Hargrave</u>						
Out-of-Prov.		1	8	7	7	23
In-Prov.			1	2	1	4
Total		1	9	9	8	27
<u>Total</u>						
Out-of-Prov.	1	6	29	27	21	84
In-Prov.	1	5	21	9	6	42
Total	2	11	50	36	27	126
%	1.6	8.7	39.7	28.6	21.4	100

TRAFFIC COUNT FOR SETON WAYSIDE PARK

TABLE 20

Time	Manitoba		Out-of-Prov.		Commercial		Unidentified	
	Pass	Stop	Pass	Stop	Pass	Stop	Pass	Stop
10-11 a.m.	87	1	49	2	52		4	
11-12 noon	115	3	55	8	55		2	
12- 1 p.m.	141	6	153	4	71			
1 - 2 p.m.	85	1	73	4	57		2	
2 - 3 p.m.	136	3	161	5	69		2	
3 - 4 p.m.	154	2	144	2	84		7	
4 - 5 p.m.	94	2	60	1	51		4	
5 - 6 p.m.	134	6	157	2	66			
6 - 7 p.m.	83	1	48	4	45		3	
7 - 8 p.m.	61	2	44		56			
Total #	1090	27	944	32	606		24	
%		2.42		3.28				
Combined Pass & Stop Total	1117		976		606		24	
%	41.0		35.8		22.3		.9	

Grand Total for Passing: 2,664

Grand Total for Stopping: 59

% Stopping: 2.17%

TRAFFIC COUNT FOR KEYES WAYSIDE PARK

TABLE 21

Time	Manitoba		Out-of-Prov.		Commercial		Unidentified	
	Pass	Stop	Pass	Stop	Pass	Stop	Pass	Stop
10-11 a.m.	79	2	37	1	18			
11-12 noon	111	8	59	2	22			
12- 1 p.m.	128	2	46	5	38			
1 - 2 p.m.	72	4	26	3	31			
2 - 3 p.m.	150	6	62	1	38		1	
3 - 4 p.m.	85	3	30	3	24		1	
4 - 5 p.m.	121	5	41	4	23		5	
5 - 6 p.m.	126	6	36		28		3	
6 - 7 p.m.	86		20		26	1	2	
7 - 8 p.m.	75	2	18	1	30		2	
Total #	1038	38	375	20	278	1	15	
%		3.53		5.06		0.36		
Combined Pass & Stop Total	1076		395		279		15	
%	61.0		22.4		15.8		.90	

Grand Total for Passing: 1,706

Grand Total for Stopping: 59

% Stopping: 3.34%

TRAFFIC COUNT FOR NORQUAY WAYSIDE PARK (HEADING WEST)

TABLE 22

Time	Manitoba		Out-of-Prov.		Commercial		Unidentified	
	Pass	Stop	Pass	Stop	Pass	Stop	Pass	Stop
10-11 a.m.	128	1	64		51			
11-12 noon	159	3	95	1	53		4	
12- 1 p.m.	134	2	90	6	80		2	
1 - 2 p.m.	139	1	54	4	44		3	
2 - 3 p.m.	150	2	81	1	7		3	
3 - 4 p.m.	130		84	1	59		2	
4 - 5 p.m.	155		83		39		6	
5 - 6 p.m.	146	1	38	2	42		1	
6 - 7 p.m.	123		62		47		4	
7 - 8 p.m.	138	2	36		16		1	
Total #	1402	12	687	15	438		26	
%		.85		2.14				
Combined Pass & Stop Total	1414		702		438		26	
	54.8		27.2		17.0		1.03	

Grand Total for Passing: 2,553

Grand Total for Stopping: 27

% Stopping: 1.05%

TRAFFIC COUNT FOR NORQUAY WAYSIDE PARK (HEADING EAST)

TABLE 23

Time	Manitoba		Out-of-Prov.		Commercial		Unidentified	
	Pass	Stop	Pass	Stop	Pass	Stop	Pass	Stop
10-11 a.m.	116	1	52		66		1	
11-12 noon	137		75		61		1	
12- 1 p.m.	146	5	79	3	50		6	
1 - 2 p.m.	89	4	36	3	7		2	
2 - 3 p.m.	182	1	67	2	46	1	1	
3 - 4 p.m.	189		105	2	59		5	
4 - 5 p.m.	195	3	40	3	58	2	2	
5 - 6 p.m.	332	12	129	2	20		2	
6 - 7 p.m.	201	1	66		54		4	
7 - 8 p.m.	277	1.5	54		31		4	
Total #	1864	28.5	703	15	452	3	28	
%		1.51		2.13		.66		
Combined Pass & Stop Total	1892.5		718		455		28	
%	61.2		23.2		14.7		.9	

Grand Total for Passing: 3,047

Grand Total for Stopping: 46.5

% Stopping: 1.52%

TRAFFIC COUNT FOR KIRKELLA WAYSIDE PARK

TABLE 24

Time	Manitoba		Out-of-Prov.		Commercial		Unidentified	
	Pass	Stop	Pass	Stop	Pass	Stop	Pass	Stop
10-11 a.m.	72		174	5	20		2	
11-12 noon	94	2	172	5	15			
12- 1 p.m.	70		162	4	20			
1 - 2 p.m.	88	2	182	4	30		5	
2 - 3 p.m.	79	1	161	5	20		6	
3 - 4 p.m.	72	1	164	5	30		3	
4 - 5 p.m.	64	2	167	2	29		4	
5 - 6 p.m.	82	2	140	4	20		4	
6 - 7 p.m.	86	2	123	3	31		4	
7 - 8 p.m.	67	1	90	1	24		2	
Total #	774	13	1535	38	239		30	
%		1.65		2.42				
Combined Pass & Stop Total	787		1573		239		30	
%	29.9		59.8		9.1		1.1	

Grand Total for Passing: 2,578

Grand Total for Stopping: 51

% Stopping: 1.94%

TRAFFIC COUNT FOR HARGRAVE WAYSIDE PARK

TABLE 25

Time	Manitoba		Out-of-Prov.		Commercial		Unidentified	
	Pass	Stop	Pass	Stop	Pass	Stop	Pass	Stop
10-11 a.m.	62	1	93	4	17		4	
11-12 noon	128	2	137	8	23		3	
12- 1 p.m.	105	4	156	3	34		5	
1 - 2 p.m.	150	3	129	9	25		3	
2 - 3 p.m.	126	4	134	8	11		3	
3 - 4 p.m.	124	4	172	4	37		6	
4 - 5 p.m.	111	1	129	5	27		7	
5 - 6 p.m.	119	2	132	6	30		5	
6 - 7 p.m.	122	3	124		29	1	7	
7 - 8 p.m.	96	1.5	91	4	305		4	
Total #	1143	25.5	1297	51	263.5	1	47	
%		2.18		3.78		0.38		
Combined Pass & Stop Total	1168.5		1348		264.5		47	
%	41.3		47.7		9.4		1.7	

Grand Total for Passing: 2750.5

Grand Total for Stopping: 77.5

% Stopping: 2.74%

VEHICLES ACCUMULATED IN WAYSIDE PARK BY TIME OF DAY -
AVERAGES FOR WAYSIDE PARKS AS A WHOLE

TABLE 26

TIME	Average Number of Vehicles Accumulated	Average Percentage of Vehicles Accumulated
10-11 a.m.	3.0	5.6
11-12 noon	7.0	13.1
12-1 p.m.	7.3	13.7
1-2 p.m.	7.0	13.1
2-3 p.m.	6.7	12.6
3-4 p.m.	4.5	8.4
4-5 p.m.	5.0	9.4
5-6 p.m.	7.5	14.1
6-7 p.m.	2.7	5.1
7-8 p.m.	2.7	5.1

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