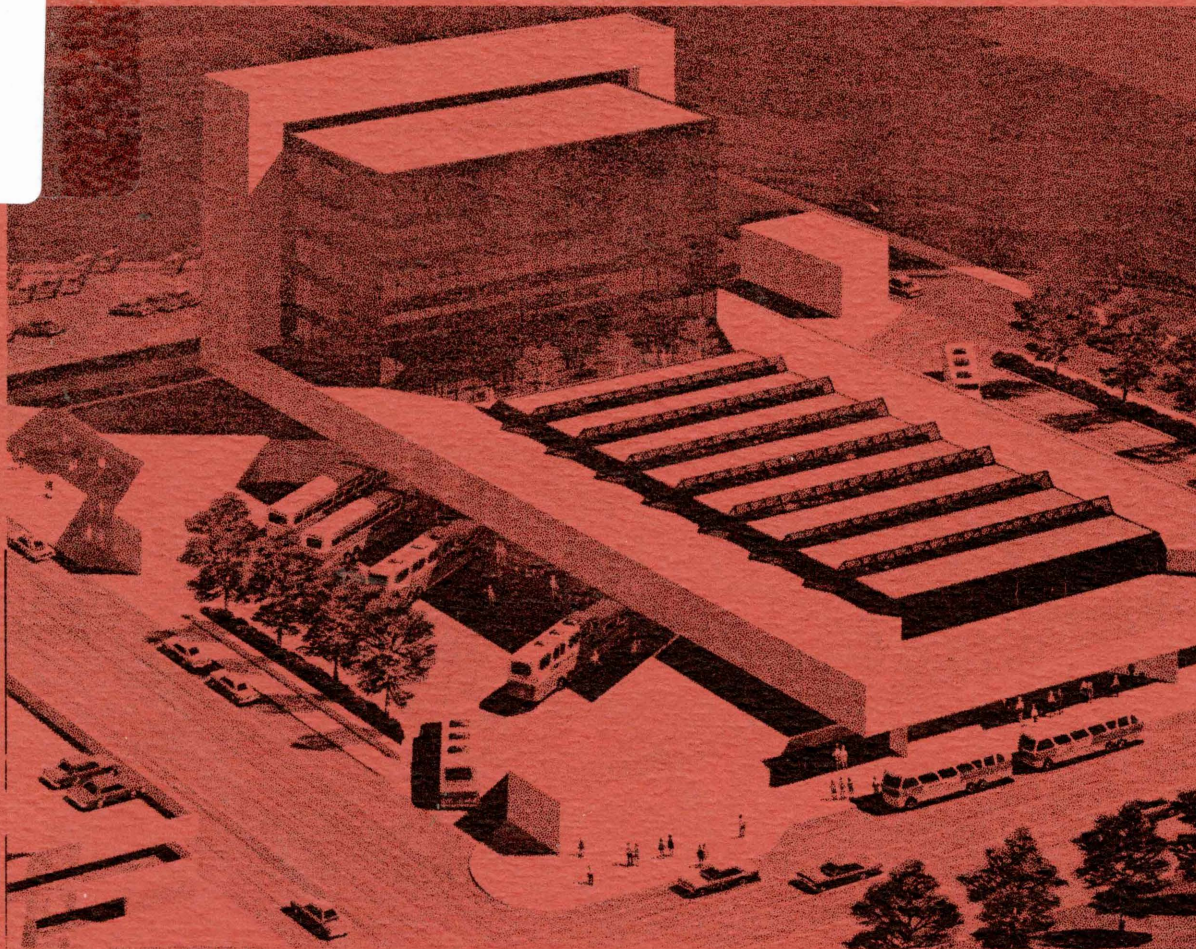


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GUIDELINES FOR PLANNING, DESIGNING, AND DEVELOPING GROUND TRANSPORTATION CENTERS

PREPARED FOR
IOWA DEPARTMENT OF TRANSPORTATION
TRANSIT DIVISION
By Barton-Aschman Associates, Inc.

GUIDELINES FOR
PLANNING, DESIGNING, AND DEVELOPING
GROUND TRANSPORTATION CENTERS

Prepared for the
Iowa Department of Transportation
Transit Division

By Barton-Aschman Associates, Inc.
Evanston, Illinois

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PREFACE

1. What is a ground transportation center (GTC), and what are its benefits?
2. What functions can and should a GTC fulfill, and where should it be located?
3. How should a GTC be designed?
4. How much will a GTC cost to develop, and how can this cost be financed?
5. Are there any special problems in developing a GTC, and how can they be dealt with?

Providing the basic answers to these questions, and guidelines to follow in pursuing a GTC program for your community, is the purpose of this handbook.

1.
WHAT IS A GROUND TRANSPORTATION CENTER,
AND WHAT ARE ITS BENEFITS?

DESCRIPTION OF A GTC

As your bus approaches the downtown area, you are concerned about getting out in the heavy rain, collecting your baggage, and finding a taxi for your ride home. To your surprise, the bus enters a large enclosed structure and smoothly berths under complete cover in a modern-designed, colorful, and well-lighted area. By the time you are off the bus, your luggage is waiting for you in the passenger waiting area, which is more comfortable and attractive than any airport you have seen. You easily see a sign directing you to a taxi stand and find a cab waiting. You walk to the door nearest the cab stand, leave the terminal, and within a few steps enter the taxi which will take you home.

You have just experienced one dimension of your community's new ground transportation center (GTC). City as well as intercity buses use this facility--in fact, all forms of public transportation have their proper place in the GTC.

Tomorrow, on your regular trip downtown on the city's transit system, you will find yourself once again at the GTC. This time, you will leave the bus, enter the terminal, walk over to the escalator, and travel to the second-level pedestrianway, which connects the GTC with numerous skywalks. But before walking the half-block to your office building, you do some window shopping at the department store built on top of the transportation terminal. You remind yourself to stroll back to the store at noon to take advantage of the sale being advertised. This is another dimension of the GTC project.

In technical terms, a multipurpose ground transportation center serves as an interface among all modes of ground transportation in a community--including, importantly, the pedestrian mode. In addition, a typical GTC project, because of its proximity to the downtown area, will likely contain several non-transportation land-uses. The case above suggested a major retail store; however, the uses are limitless, including office, residential, and institutional (such as library), as well as supplementary downtown parking space.

Figure 1 shows Buffalo, New York's ground transportation center, opened in June, 1977. Coming into this terminal for the first time, visitors are immediately struck by its bright, cheery spaciousness. Skylights, glass, and open space combine to form an appealing design. In addition to the colorful seating arrangements, the main concourse houses ticket facilities for Greyhound and Trailways bus lines. There are also a Hardee's restaurant, a gift and souvenir shop, a small cocktail bar, food and refreshment vending machines, lockers, a Metro Bus information counter, and a travelers' aid office. In addition to Greyhound and Trailways, the terminal is served by Canada Coach Lines, Eastern Canadian Greyhound Lines, Bluebird, D&F Transit and NFTA intercity Metro buses.

At the north end of the facility there is an eight-story office tower with 55,000 square feet of floor space, occupied by the Niagara Frontier Transportation Authority (NFTA) executive and administrative offices. It is located in Buffalo's central business district, just two short blocks from the Main Place Mall Shopping Center. Its location relieves congestion on Main Street and places it close to the banking and commercial district.

To best appreciate the potential of this type of facility in an Iowa community, it is necessary to imagine it located on the nearby fringe of a central business district--connected to adjacent buildings by second-level enclosed pedestrianways, such as those shown in Figure 2.

BENEFITS OF A GTC

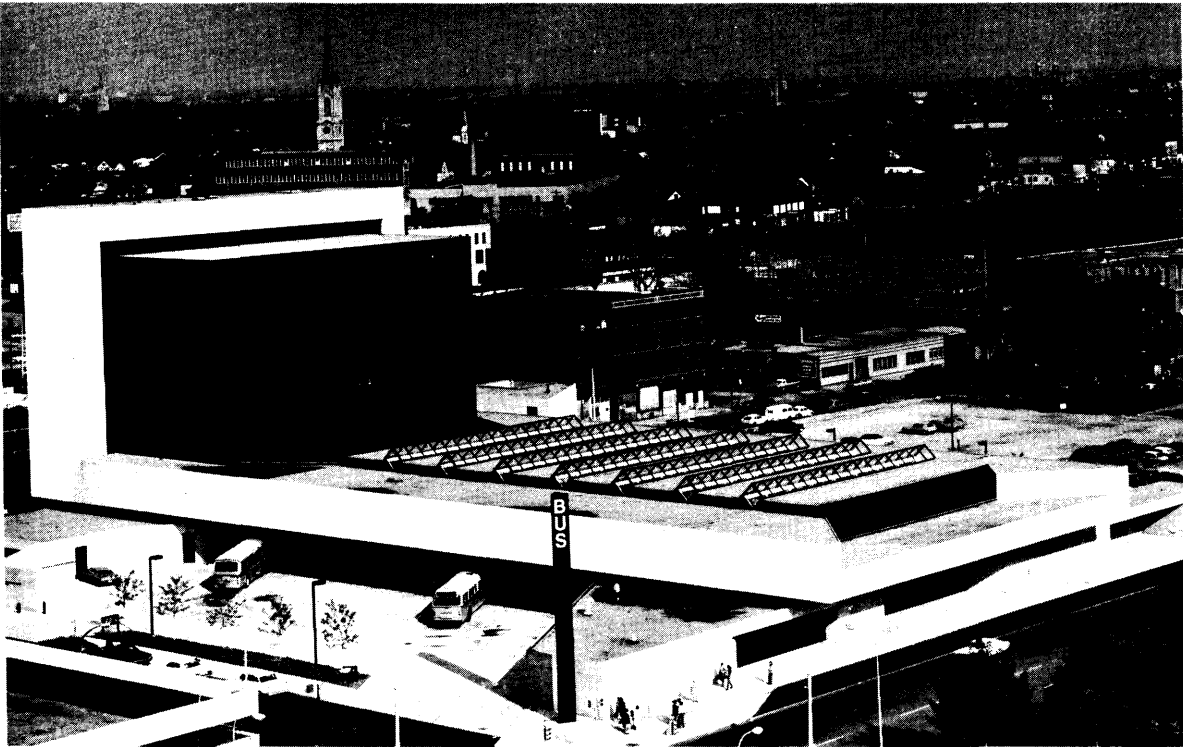
The benefits of a GTC are best understood by first examining the four major roles of such a facility.

Role 1: Facilitate Transfers Between Modes of Transportation

A GTC is intended to allow rapid passenger interchange between arrival and departure modes in a comfortable and convenient manner. The major transfers are likely to occur between local buses and the walking mode, between local buses and intercity buses, and between private car and taxi. These transfers are shown diagrammatically in Figure 3. Service and convenience can be enhanced by providing a retail outlet for over-the-counter sales of tokens, tickets, monthly passes, reduced-fare identification, etc.

Role 2: Reduce Travel Time and Congestion

A GTC can reduce travel time and congestion and also improve the operating efficiency of the transit, pedestrian, and vehicular circulation systems. Transit service can be improved by providing quick entry



Opened in June, 1977, the Transportation Center is a dramatic contrast to the conventionally dreary character of most bus terminals. Moreover, transportation and non-transportation uses have been successfully blended to create an exciting "joint development" project which is a major part of downtown Buffalo's redevelopment program. The Transportation Center is owned and operated by the Niagara Frontier Transportation Authority and was designed by Cannon Design, Inc. of Grand Island, New York.



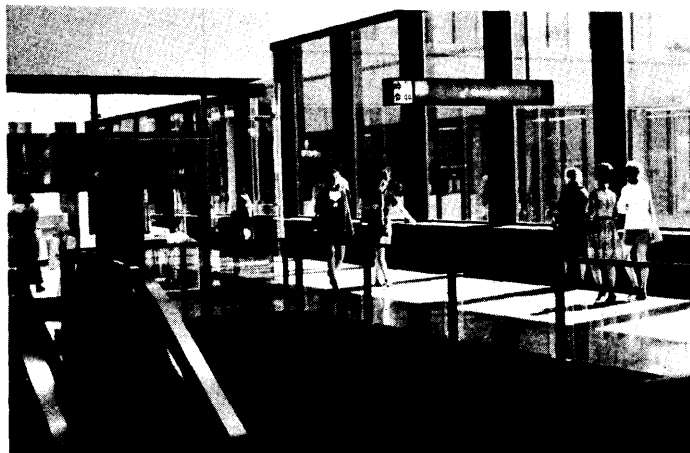
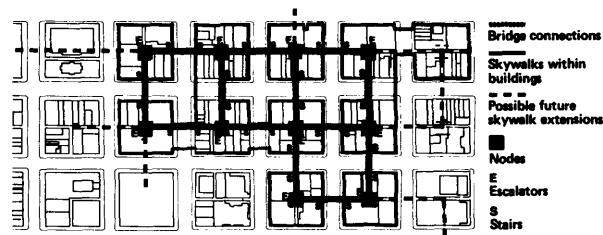
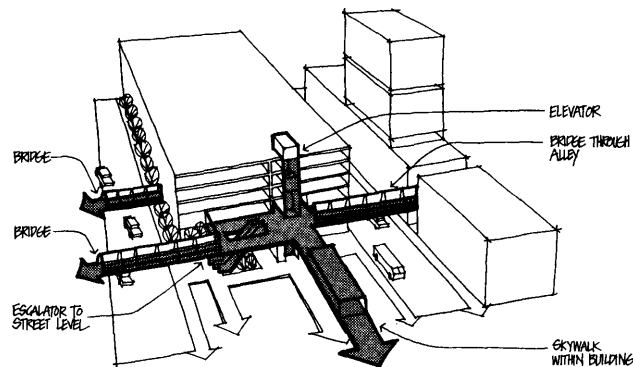
METROPOLITAN TRANSPORTATION CENTER,
BUFFALO, NEW YORK
Figure 1

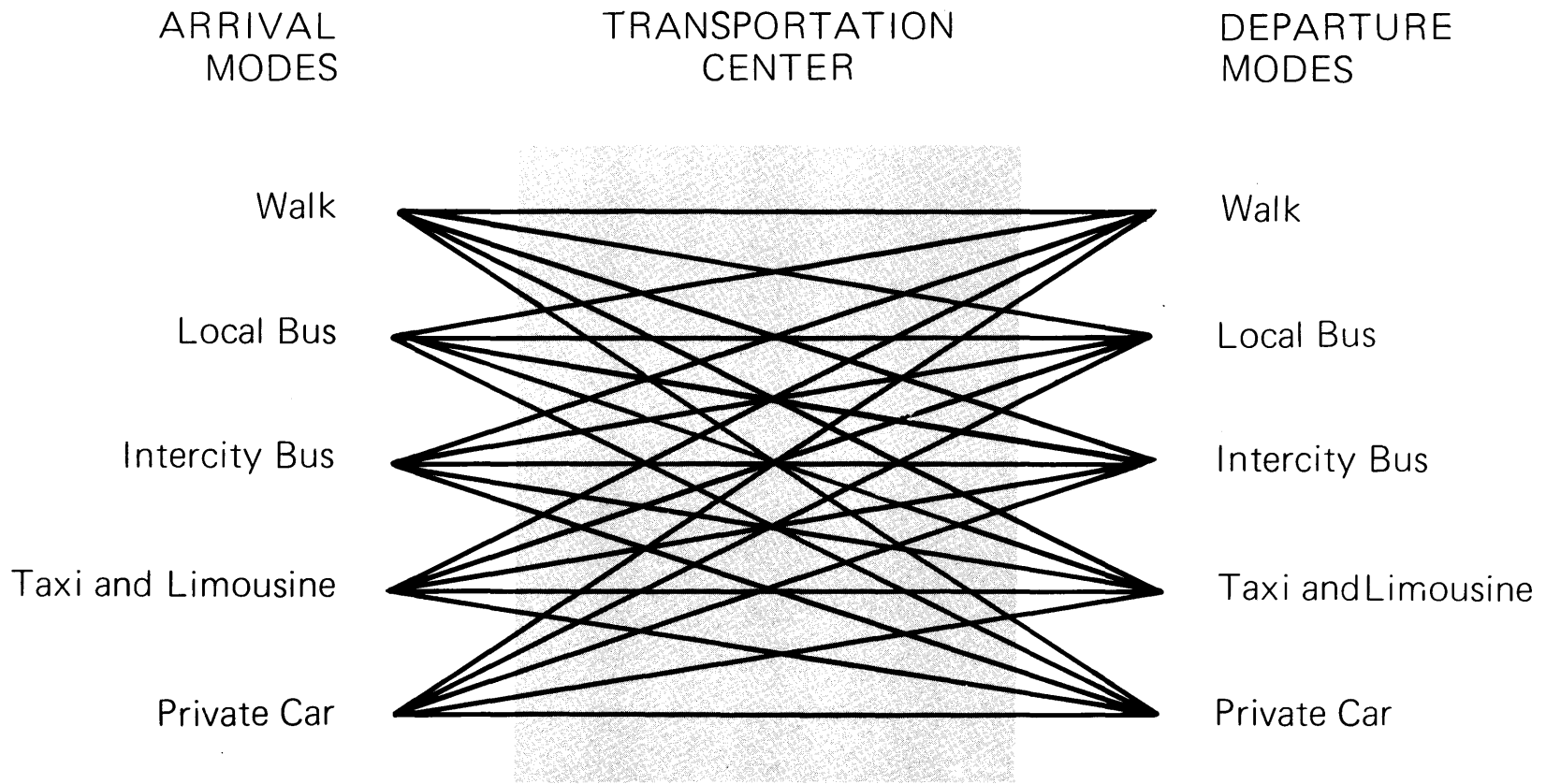
SKYWALKS

INTERCONNECTION OF GTC s WITH OTHER DOWNTOWN FUNCTIONS

Figure 2

In order to be a strong and vital part of a downtown, the GTC must be connected to adjacent uses and buildings with convenient, weather-protected pedestrian links. This includes escalators, elevators, and skywalks.





MODE INTERCHANGE DIAGRAM
Figure 3

and departure for buses moving to and from the downtown area and the center. Off-street loading/unloading means fewer bus stops and fewer buses on downtown streets, which will increase average bus speed and reduce traffic congestion. By linking the center to a climate-controlled skyway system, good access to all parts of the central business district can be provided for transit riders. If off-street parking space is provided, the project will intercept motorists as well as buses.

Role 3: Provide Consumer Goods and Services

Acting as an entity in itself, the center would function as both a primary and secondary destination. The consumer goods and services that are available will attract some people whose primary trip purpose is to accomplish some errand within the center. People on their way to work or to shop may also stop for some secondary trip purpose, such as buying a newspaper, coffee, or candy.

Role 4: Stimulate and Support Development and Act as a Gateway to Downtown

Improved accessibility should stimulate development and help to strengthen the central business district as the single most important retailing and office center in the region. The space required for a GTC in the typical Iowa city will be fairly large--probably at least 75,000 to 100,000 square feet. Assembly of a site this size in or near the downtown normally requires considerable property acquisition and clearance. This is an opportunity to remove obsolete buildings and land-uses, and, in particular, to create a substantial new development at the second level. The favorable land assembly and cost factors made possible through the federal funding of the basic GTC can make the economics of joint development particularly attractive to private investors.

Some elements of the proposed facility will support adjacent development. In an urban design sense, the GTC should be a major gateway to the downtown. A substantial amount of any federal grant obtained for implementation of a GTC project can be used for environmental improvement of the general vicinity of the site.

In summary, a GTC project can benefit a city by:

1. Improving the comfort and convenience of public transportation services.
2. Improving the operating efficiency of transit services.
3. Improving declining area(s) of the downtown.
4. Providing new opportunities for private investment and new business in the downtown.

The following quote from an editorial in the March 13, 1977 edition of the Buffalo *Evening News*, referring to the Buffalo, New York GTC, sums up these benefits:

The Transportation Center not only will provide a modern terminal for city, suburban and inter-city buses but will inject new vitality into what had been a decaying commercial block, encouraging peripheral developments and generally bolstering the east central portion of the downtown district.

2.
WHAT FUNCTIONS CAN AND SHOULD A GTC FULFILL,
AND WHERE SHOULD IT BE LOCATED?

A ground transportation center is, by function and definition, a multi-use development involving several transportation and non-transportation functions. This multi-use character and the consolidation and coordination of transportation elements are what differentiates the ground transportation center from a parking facility, transit transfer point, intercity bus terminal, or other single-use facility. The reasoning behind the consolidation of several transportation and non-transportation functions into one facility is that through the proximity of these functions, each individual function is made more economical and/or efficient, and a synergism occurs in which the whole is greater than the sum of the parts. This is merely to say that certain transportation and non-transportation functions can reinforce each other and make each other better as a result of being located in one facility.

While specific locational criteria will be discussed later, it should be stated that the full potential of a GTC can only be realized when the facility is located in or very near the downtown area. Accordingly, the development of GTCs in central business districts should be a primary goal.

Multi-use of parking spaces is one example of this efficiency potential. Parking spaces which serve different characters of demand (e.g., daytime commuter parking, evening theater parking) make much more efficient use of resources. The same concept holds for the ground transportation center. The initial step in the GTC development process, where possible transportation and non-transportation functions are examined, must address the possible uses for the transportation center facility which can reinforce each other. Providing a *generator* of people traffic (e.g., bus stops, bus terminal, parking facility, etc.) and a use which *requires* people traffic (e.g., pedestrian-oriented retail, office, etc.) develops the mutual reinforcement which the transportation center seeks.

DETERMINING TRANSPORTATION CENTER FUNCTIONS

The list of potential transportation and non-transportation functions amounts to an initial "shopping list" of possibilities. Even an initial determination of what functions to include must be based on an analysis of the downtown area as a whole. The existing and planned transportation elements in and near the downtown, existing and planned land-use, and proposed development projects all must be considered in determining the functions for the GTC. The first step, therefore, in determining possible functions is to determine the existing transportation and non-transportation uses in the downtown and review all plans for new development or redevelopment.

The transportation functions which should be considered during the initial planning phase are:

1. Intercity bus loading/unloading.
2. Intercity bus ticket office/waiting room.
3. Intercity bus freight office/loading/unloading.
4. Pedestrian system node.
5. Transit circulation system node.
6. Local bus stop/terminal/transfer area.
7. Local bus operations center/service/storage area.
8. Taxi/limousine stand.
9. Airline ticket office.
10. Car rental office.
11. Mobility-handicapped transit system stop.
12. Auto parking.

Review of existing and planned transportation functions in the downtown may yield additional functions which should be considered.

NON-TRANSPORTATION FUNCTIONS

While the transportation functions represent the initial reason for building a GTC, the potential for non-transportation functions makes the overall development unique and provides opportunities to reinforce CBD development.

These non-transportation functions will vary with each city, depending on the GTC site location and strength of local development markets. Typically, transit passengers alone are insufficient to support new increments of private development. However, passengers *and employees* of a GTC may provide the margin of profitability for businesses which otherwise serve a general downtown clientele.

A GTC may also induce business development by providing economic advantages for private business operation. The costs of private

development and business operation may be lower at a GTC than elsewhere, due to a variety of available techniques including, but not limited to:

- Public land assembly.
- Lower land costs or lease terms.
- Public provision of shelter space.
- Joint facility operation.
- Public parking provision.

The dual advantage of on-site market potential and advantageous development economics could leverage new private development to a GTC complex and result in provision of beneficial commercial services to the downtown and the region.

Table 1 provides guidelines for collecting the necessary background data for preliminary functional, locational and space planning of a GTC.

LOCATIONAL CRITERIA

Selection of a site for the ground transportation center is an important first step in the design process. In general, the site search area should be confined to the central business district and its fringe area. An initial screening of potential sites can be made on the basis of the following criteria:

1. *Size and Shape.* The site should be large enough to adequately accommodate all transportation functions programmed, and any non-transportation uses that must have ground-level access. The shape of the site should allow efficient use of the land.
2. *Roadway Service.* The site should be served by a primary or secondary arterial roadway and should also have access to a collector or local street.
3. *Local Transit Service.* The site should be on or near a major CBD transit route, or located so that existing and proposed routes can be diverted to serve the site with minimal extra mileage incurred.
4. *Intercity Bus Service.* The site should be easily accessible by means of expressways and/or primary arterial streets from intercity bus routes.
5. *Proximity to Existing and Planned Development.* The site should be adjacent to (within two to three blocks) the core of the central business district and should support existing development plans by providing a stimulus for additional development.
6. *CBD Distribution System.* The site should be located so that it can be directly served by the CBD pedestrian system (at-grade or grade-separated) and the CBD transit circulation system (existing or planned).

Table 1
GUIDELINES FOR COLLECTING THE NECESSARY BACKGROUND DATA FOR PLANNING OF A GTC

| Function | Questions | Provider |
|---|--|---|
| 1. Intercity Bus Loading/Unloading | Maximum number of buses parked, time of peak parking demand projected, and five- and 10-year future demand. | Intercity bus companies--Greyhound, Continental, etc. |
| 2. Intercity Bus Ticket Office/Waiting Room | Size of ticket office desired, estimate of number of waiting patrons, time of peak patron waiting demand, future expansion desired, and number of passenger drop-off spaces required. | Intercity bus companies--Greyhound, Continental, etc. |
| 3. Intercity Bus Freight Loading/Unloading | Size of freight storage area desired, number of truck/safe freight drop-off stations desired, and projected five- and 10-year future demand. | Intercity bus companies--Greyhound, Continental, etc. |
| 4. Pedestrian System Mode | Type of planned pedestrian system (ground level, at-grade, below-grade), location, size of entrance required, and future expansion needs. | City planning department and city engineering department. |
| 5. Transit Circulation Mode | Type of planned CBD transit circulation system (if any), type of equipment (people-mover, bus, etc.), location, number of vehicles stopped during peak period, size of entrance/stop required, and future expansion needs. | City planning department, local transit operating agency. |
| 6. Local Bus Stop/Transfer Area | Maximum number of buses parked, time of peak demand, system operation (pulse, other), and five- to 10-year future demand. | Local transit operating agency. |
| 7. Local Bus Operations Center/Service/Storage Area | Number of buses to be stored/serviced, time of demand, maximum number of storage/service spaces required, five- and 10-year future needs, and size of office needed for operations center. | Local transit operating agency. |
| 8. Taxi/Limousine Stand | Number of spaces required (for taxi stand or limousine stalls) during peak demand period, and time of peak parking demand. | Local taxi companies, and airport limousine companies. |
| 9. Airline Ticket Office | Desired square feet of space for downtown ticket office. | Airlines serving local airport. |
| 10. Car Rental Office | Desired square feet of counter and office space, and number of safe storage spaces required. | Auto rental companies. |
| 11. Elderly/Handicapped Transit System Stop | Number of vehicles stopped during peak demand period, and time of peak demand. | Elderly and handicapped services. |
| 12. Auto Parking | Number of spaces required by: intercity bus personnel, local bus system personnel, taxi/limousine personnel (dispatchers, etc.), airline personnel, car rental personnel, elderly and handicapped system personnel, and car care center personnel. | Affected companies and agencies. |
| 13. Non-Transportation | | |
| a. Retail | How many stores and what sizes? Visibility and marketing needs? Location vis-à-vis transportation functions (separate or integrated)? Parking requirements? | Commercial realtors, developers, and merchants. |
| b. Office | What floor size? How many floors? Separate entrance and identify from GTC? Parking requirements? Location of entrance and lobby? | Commercial realtors, developers, and office tenants. |
| c. Residential | How many units? How many floors? Typical floor sizes? Expected tenant types and special needs (e.g., elderly)? Parking requirements? Retail service requirements (e.g., laundry, eating)? | Residential realtors, developers, government officials (if subsidized housing). |
| d. Institutional | Integration or separation from transportation uses? Lobby requirements? Floor sizes and number of floors? Parking requirements? Ownership requirements? | Institutional tenants. |

7. *Availability and Cost of Site.* The site should be available; preferably, all or the major portion of it should be in city ownership. If, on the other hand, acquisition is required to assemble the site, the property should not be unreasonably difficult or costly to purchase.

In many cases, the use of these basic criteria will be adequate for final site selection. Often the choice of sites can be quickly reduced to several through a simple process of elimination based upon availability, cost, and other downtown development projects and objectives. In those cases where several sites appear relatively equal, it may be necessary to use a more rigorous evaluation system. In such cases, the above basic criteria can be translated into more specific statements with measures stated for each (see Table 2). Some lend themselves to quantitative measures--others are qualitative in nature. During the evaluation process, performance with respect to each measure can be estimated for each alternative site. The performance of each site can, thus, be objectively compared. Use of such a technical evaluation can often aid in making a final selection among several sites that appear to have similar qualities.

Table 2
GTC SITE LOCATION EVALUATION CRITERIA

| Criterion | Objective | Measure |
|------------------------------------|---|--|
| <u>Location</u> | | |
| 1. Transit access. | Accessibility to all transit routes. | Number of bus-blocks/day between facility and existing and planned CBD routes. |
| 2. Pedestrian access. | Minimum walking distance from CBD trip generators. | Average walking distance to CBD trip generator centroid. |
| 3. Focal point. | Increase prominence and visibility of transit to increase potential ridership. | Prominence of location in terms of CBD development and circulation patterns (qualitative). |
| 4. Pedestrian movement. | Ensure expeditious pedestrian movement to and around facility. | Quality of pedestrian facilities near and around site (qualitative). |
| 5. Street system access. | Accessibility to arterial street system. | Number of moving lanes of arterial street contiguous to site; number of cardinal directions of movement produced on contiguous arterial streets. |
| <u>Impacts</u> | | |
| 6. Traffic congestion. | Avoid adding to existing congestion; avoid delays to transit vehicles. | Maximum volume/lane on any contiguous arterial street. |
| 7. Land-use compatibility. | Facility should support and/or be compatible with adjacent land-uses. | Percent of frontage on same block or block faces opposite block on which facility is located with which facility is not compatible. |
| 8. Relocation. | Minimize relocation of existing businesses and households. | Number of businesses and households to be relocated. |
| <u>Site Characteristics</u> | | |
| 9. Size. | Adequate size to accommodate all transportation and non-transportation functions that require ground level space. | Total site size. |
| 10. Shape. | Adequate dimensions for efficient use. | Appropriate percent of site which is useable. |
| 11. Cost. | Minimize site acquisition cost. | Site acquisition cost. |
| <u>Implementation</u> | | |
| 12. Implementation time. | Minimize time necessary for implementation. | Approximate months to acquire, and clear site if necessary. |
| <u>Transfers</u> | | |
| 13. Expeditious transfers. | Minimize walking distance required for inter-route transfers. | Maximum walking distance between buses at transfer facility. |
| <u>Joint Development</u> | | |
| 14. Joint Development Opportunity. | Maximize joint development of non-transportation uses with the basic transportation center functions. | (a) Types of non-transportation uses that are feasible; (b) non-transportation use investment potential; (c) number of solid joint-development commitment needs. |

3.
HOW SHOULD A GTC BE DESIGNED?

This section of the handbook presents design guidelines and illustrates these through the use of several case studies.

An important design reality was identified during the program and implementation planning for GTCs in Cedar Rapids, Davenport, Des Moines, and Sioux City. Simply stated, there is no standard GTC design or "cookie-cutter" blueprint that can be used in every city, over and over again. At the outset of the work there was hope that a standard design could be developed. However, it was soon apparent that each situation was unique--particularly because of the joint-development aspect of each facility. The need to integrate non-transportation uses into the project in a way most compatible with surrounding land-uses and development opportunities creates unique design problems in each community. The factors which most directly bear upon both the site design and internal space allocation of a GTC are:

1. Mix of intercity and city bus and other transit vehicles, i.e., how many of each type, frequency of service, etc.
2. Traffic pattern and traffic conditions on access roadways and surrounding streets, i.e., one-way streets, curb parking, possible street closures, etc.
3. Surrounding land-uses and development projects; i.e., commercial space built into the GTC project should be in proximity to existing commercial functions.
4. Relationship of major transit user destinations in the CBD to city transit area in GTC; i.e., the city transit bus loading and unloading area (in the GTC) should be as close as possible to the major destinations of most of the CBD-bound transit users.
5. Ground-floor needs of non-transportation users; e.g., if a hotel developer wishes to be a part of the GTC complex, a substantial ground-floor area must be reserved for lobby functions; similarly, such ground-floor access must be provided for office and housing facilities.

The procedure for the initial design of a GTC involves four basic steps:

1. Identify site.
2. Determine functions (both transportation and non-transportation) to be included in the GTC project.
3. Estimate the square feet of space required for each function and the total space in order to determine preliminary site size.
4. Establish initial layout of the GTC, determine preliminary functional design, and calculate preliminary cost estimates.

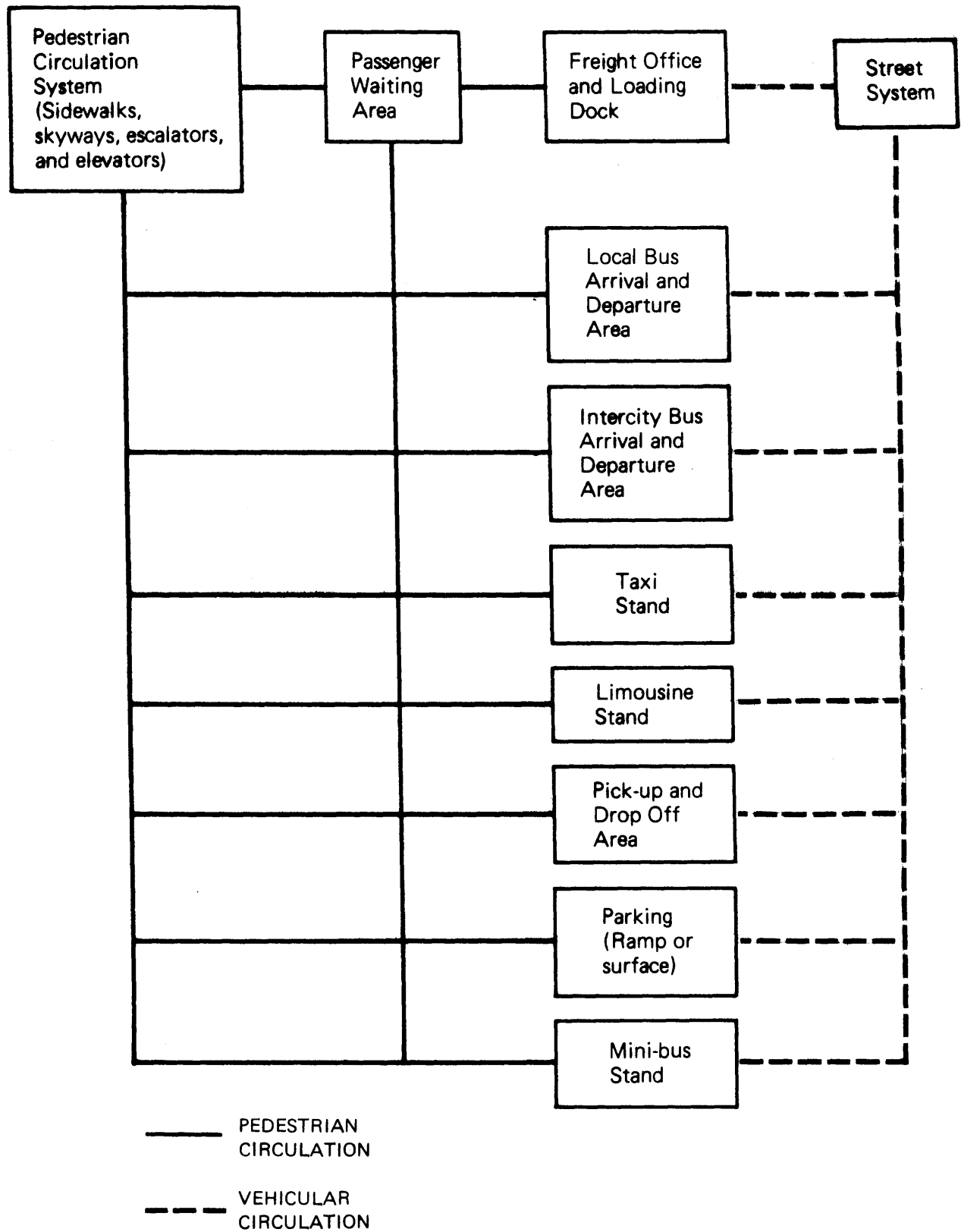
Each of these steps will be preliminary in nature at this initial point in the development process and, therefore, subject to continuing review and modification as the design process continues. Even at a preliminary level of analysis, however, the overall scope of the undertaking, problems, potentials, and opportunities will be evident .

FUNCTIONAL DESIGN CONSIDERATIONS

The major transportation elements that would be accommodated within the typical GTC facility are the passenger waiting area, freight area, local bus arrival and departure area, and intercity arrival and departure area. Other areas include pickup and drop-off zones, a taxi and limousine stand, and an area for any special local transit services (for the elderly, handicapped, and others). The major linkages among these transportation activities are illustrated in Figure 4.

Considering these linkages, several basic functional design principles should be followed:

1. *The city bus and intercity bus boarding areas should be separated.* There are two important reasons for this. First, the frequency of service is much different for these two operations: intercity bus layovers can range from a few minutes to several hours; city bus service will be very regular during the day, operating on 15- or 30-minute headways for the most part. Thus, each operation calls for a different platform area design. In addition to the frequency differential, the equipment is different, and the intercity carriers handle a great deal of freight. Finally, there are institutional and/or facility management issues that suggest separation; e.g., as the city in most cases is the operator of the transit system, and will be the owner/manager of the GTC, rental rates charged the intercity carriers are probably most easily established when their operating areas are clearly separate from the city's transit area.



LINKAGES AMONG TRANSPORTATION ELEMENTS
 Ground Transportation Center
 Figure 4

2. *The areas for passengers, ticket sales, and freight handling should be convenient to both city bus and intercity bus. The terminal area will be used by both city bus and intercity bus patrons. Thus, it should be convenient to both types of service. This, in combination with the first guideline stated above, strongly suggests that the terminal area be placed between the two bus operating areas.*
3. *Conflicts between the basic pedestrian and vehicle movements (illustrated in Figure 4) should be avoided (or reduced) to the extent possible. This underscores the need to separate the city and intercity bus areas. Another point, by way of illustration, would be the problem of allowing the same roadway or pathway used by taxis and minibuses to be used for access/egress to an upper-level parking ramp.*
4. *The linkages between the surface-level pedestrian paths and upper-level pedestrian systems (elevators, escalators, and skywalks) must be simple, direct, and unobstructed.*

In addition, these pedestrian facilities must be designed with the following considerations: (a) who will be the major users--mainly, this will be the city transit patrons; hence, their boarding area and major direction of travel to and from the GTC must be given priority consideration; and (b) relationship of GTC functions (ground-level and upper-level) to surrounding land-uses and pedestrian systems; for example, any skyway system that is in place as of final planning needs to be integrated with the pedestrian access system of the GTC.

5. *Adequate and convenient parcel pickup and delivery areas must be incorporated adjacent to the terminal area. This function is critical to the intercity bus business. There will a freight handling area in the terminal area--it should be located convenient to the bus berths. The traffic-making parcel pickups and deliveries will be mainly comprised of automobiles and small trucks and vans. There should be a separate dock or standing area for this purpose. If possible, the accessway for these vehicles should be separated from other vehicle paths; however, if necessary, they can use the same access system as provided for the intercity buses.*

SITE DESIGN CONSIDERATIONS

Once a site is selected, general sketch planning can begin, using the functional planning and space allocation guidelines outlined earlier. There are also some broader, site-related considerations that need to be made at the same time:

1. *Geography and Geology of the Site.* Obviously, these factors would receive some consideration early in the site selection process--for example, a site with extreme grade changes would probably be unsuitable. However, if the grades were great enough, and in the right direction, two transportation levels might be quite satisfactory. Site conditions which must be taken into consideration in the final design include:

- Topography.
- Soil bearing capacity.
- Groundwater level (in the case of subsurface construction).
- Location of floodplains or floodways (and building restrictions therefrom).

2. *Surrounding Site Traffic and Traffic Patterns (Existing and Planned).* Easy, safe access and egress is extremely important to the day-to-day operation of a GTC. Although this factor is an important consideration in site selection, many details need to be reviewed during the site/facility design process, including:

- Direction of traffic flow on boundary streets--one-way, two-way, reversible lanes, etc.
- Traffic conditions on boundary streets--relative volumes, speeds, curb parking, etc.
- Traffic control system(s) used in vicinity of GTC--presence of traffic signals, stop signs, reversible lane signals, etc.
- Plans for changes to the street system--this would include modification to flow patterns, street widenings or closures, new connections to arterials or expressways, parking changes, etc.

Street traffic conditions will greatly influence the location of bus and small vehicle driveways, as well as prime pedestrian paths. In some cases, proper functioning of the GTC will *require* modification of traffic patterns; curb parking may need to be prohibited along the GTC direction of flow, and one or two boundary streets may need to be changed, etc.

3. *Surrounding Land-uses (Present and Planned).* Particularly because of the joint development nature of the GTCs envisioned in this handbook, surrounding land-uses have a major impact on site design. The GTC must be considered a major element in the fabric of the downtown; it is not a freestanding project--it is a *major redevelopment* project that must be planned in concert with the overall fabric of the central area. Any ground-level commercial space must be planned to complement such adjacent uses. Upper-level housing, office, etc., must be sensibly planned to fit into the rest of the downtown area. It is through this type of broad land-use design consideration that the maximum joint-use opportunity can be realized through the GTC project.

4. *Environmental Quality of the GTC and the Surrounding Area.* The GTC, being a large and significant project in the downtown, represents an opportunity to improve the environmental quality of the area. Achievement of a positive impact will be very dependent upon proper architectural considerations and design--which are beyond the scope of this handbook. Nonetheless, opportunities can be identified in the preliminary site design process for general building configuration and landscape architecture opportunities. For example, if a small area of the site is not needed for the GTC structure itself, it perhaps could be developed as a small pedestrian mall or planting area. Additionally, environmental improvements to adjacent areas beyond the actual GTC should be considered along with actual on-site improvements.

GENERAL SPACE NEED ESTIMATES

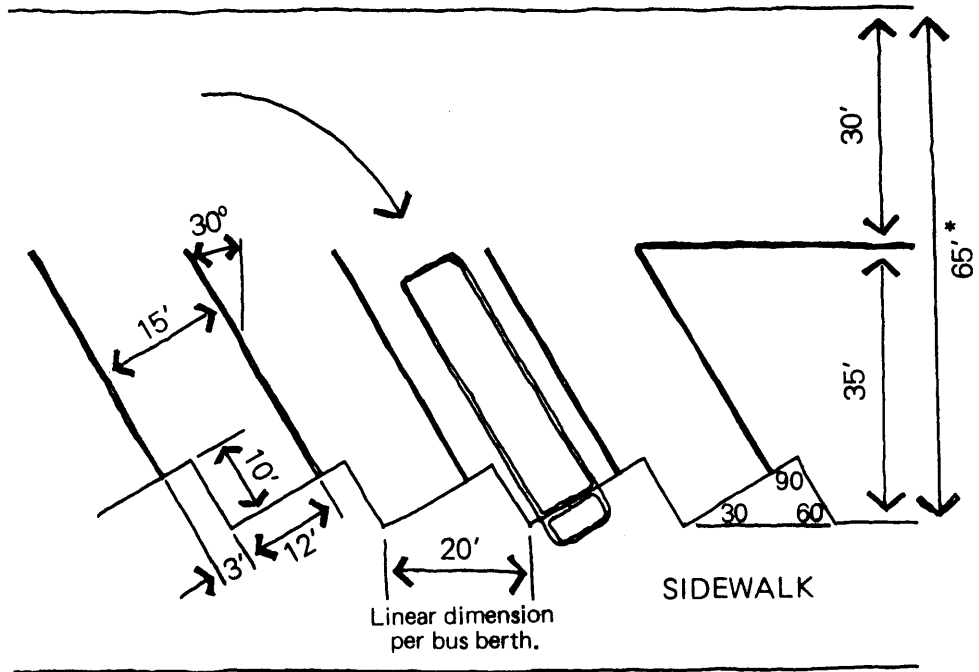
Once the initial determination of probable functions has been made, an estimate of the general space requirements can be made. This procedure will yield initial requirements for the layout and functional design as well as the gross size of the site.

Several questions must be asked of potential users of the facility to determine the square feet of space required (see Table 2) for all functions to be included in the transportation center.

The initial conversion of the functions (identified through the questions) to square footage requirements can take place as follows:

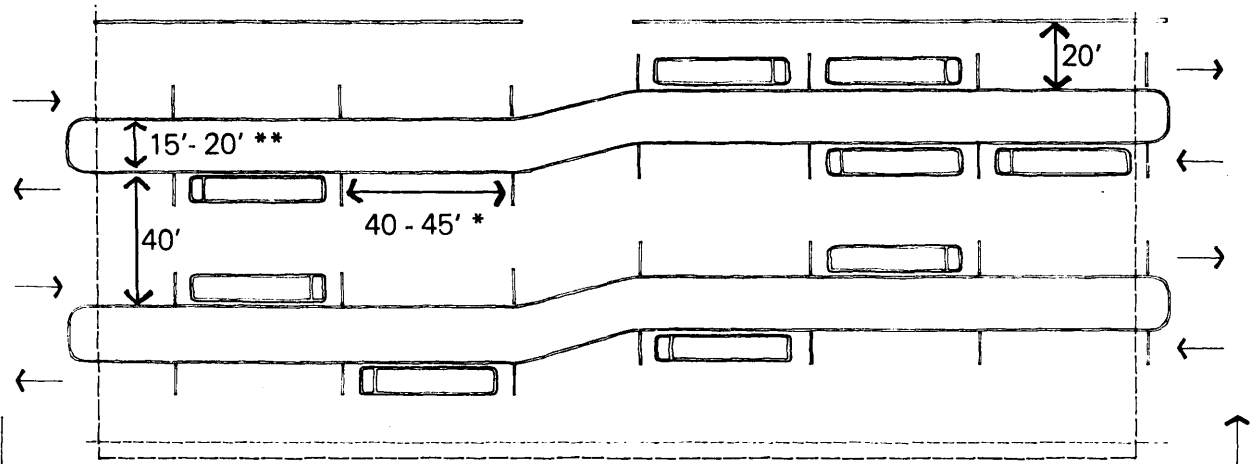
1. Intercity bus bays-- 1,600 square feet per bus to be accommodated (550 square feet parking, 550 square feet access lane, 500 square feet loading platform). (See Figure 5 for details.)
2. Local bus bays-- 1,350 square feet per bus to be accommodated (450 square feet parking, 450 square feet access lane, 400 square feet loading platform). (See Figure 5 for details.)
3. Areas for passenger waiting, ticket sales, and freight storage-- as determined by local intercity and city bus operators. However, for the purpose of gross space planning, 400 to 500 square feet per bus (both city and intercity) may be used.

(NOTE: This can vary considerably, depending upon the amount and type of freight business and ticket sales conducted by the intercity carriers, and the general quality of terminal environment desired.)



* Note: If 90° parking is preferred this overall dimension should be 80'.

INTERCITY BUS AREA



*Note: If 35' buses are used, use 40' bay;
if 40' buses are used, use 45' bay.

CITY BUS AREA ("IN-LINE")

**Note: Platform width may vary; 20' width should be used when the average number of deboarding passengers (per bus) exceeds 35 per trip.

TYPICAL CONFIGURATIONS FOR BUS AREAS
Ground Transportation Center
Figure 5

4. Taxi/limousine stand--400 to 500 square feet per bay.
5. Airline and car rental office--office space as determined by airline and/or car rental company. Auto storage--350 to 400 square feet per auto.
6. Mobility-handicapped transit system stop--1,000 to 11,000 square feet per bay (350 to 400 square feet parking, 300 square feet access, 350 to 400 square feet for loading platform).
7. Auto parking--350 to 400 square feet per space.

Once the initial size has been determined, an additional 10 to 15 percent of all bus, minibus, and taxi/limousine space (*excluding* auto parking) should be added for general vehicular and pedestrian circulation. This factor should be applied to all space, excluding the passenger/freight terminal area and auto parking area.

At this point, the space requirements for the non-transportation uses should be added to the total space obtained above to yield a gross site requirement. Initial determination of use, by floor, must also be made at this time to estimate the site size. The transportation uses which should be on the main floor are as follows:

1. Intercity bus stalls.
2. Intercity bus ticket area, waiting area, and freight office.
3. Local bus stalls.
4. Taxi/limousine stand.
5. Passenger/freight drop-off.
6. Airline ticket and rental offices.
7. Elderly/handicapped service stops.
8. CBD circulation system stops (if at-grade system).
9. Pedestrian system link (if at-grade system).

Transportation functions which can be considered for second-floor use (or sub-level use) are as follows:

1. Pedestrian system link (if grade-separated).
2. CBD circulation system stops (if grade-separated system).
3. Local bus operation center/storage/service area.
4. Rental car storage.
5. Auto parking.
6. Car care center.

Finally, non-transportation uses which require ground-floor space and that are high potential candidates for inclusion in the GTC project must be identified to determine ground-level space and access needs.

Once each of these overall requirements for space is estimated, a series of alternative functional site plans can be developed. Through the process of investigating various options, a single plan will emerge which best meets the overall site constraints and opportunities, space needs, and functional requirements.

INITIAL FUNCTIONAL LAYOUT: CASE STUDIES

As noted earlier, the functional layout of each site will differ. A way to analyze the factors which go into functional and space design is to note some examples and the resulting configurations. The following discussion addresses the preliminary design of proposed ground transportation centers for Cedar Rapids, Davenport, Des Moines, and Sioux City.

Cedar Rapids (Refer to Figure 6)

Bus Operations. Currently, the following intercity carriers serve the Cedar Rapids area: Continental Trailways, Greyhound Lines, Jefferson Lines, and Missouri Transit. Analysis of their respective schedules indicates a potential of 13 buses to be berthed at the peak time. The city bus system will be operated on a pulse basis, with all buses meeting at the GTC every half-hour. This would bring 12 buses into the center. The city bus area has been designed for up to 18 buses. The "S" shaped platform areas shown on the functional site plan will permit regular berthing of a particular bus in one or two positions. This will facilitate passenger boarding and transferring.

Other Transit Operations and Taxi. At the present time, LIFTS (two buses) and the Senior Citizens' Service (four buses) operate special transit for mobility-limited people. Each operation uses small van-type vehicles. Four spaces are shown for such minibus use just north of the taxi area. Three taxi companies are operating in Cedar Rapids--Ace Cab, Yellow Cab, and Century Cab. A permanent cab stand for each company is provided for in the plan--adjacent to the east side of the passenger terminal.

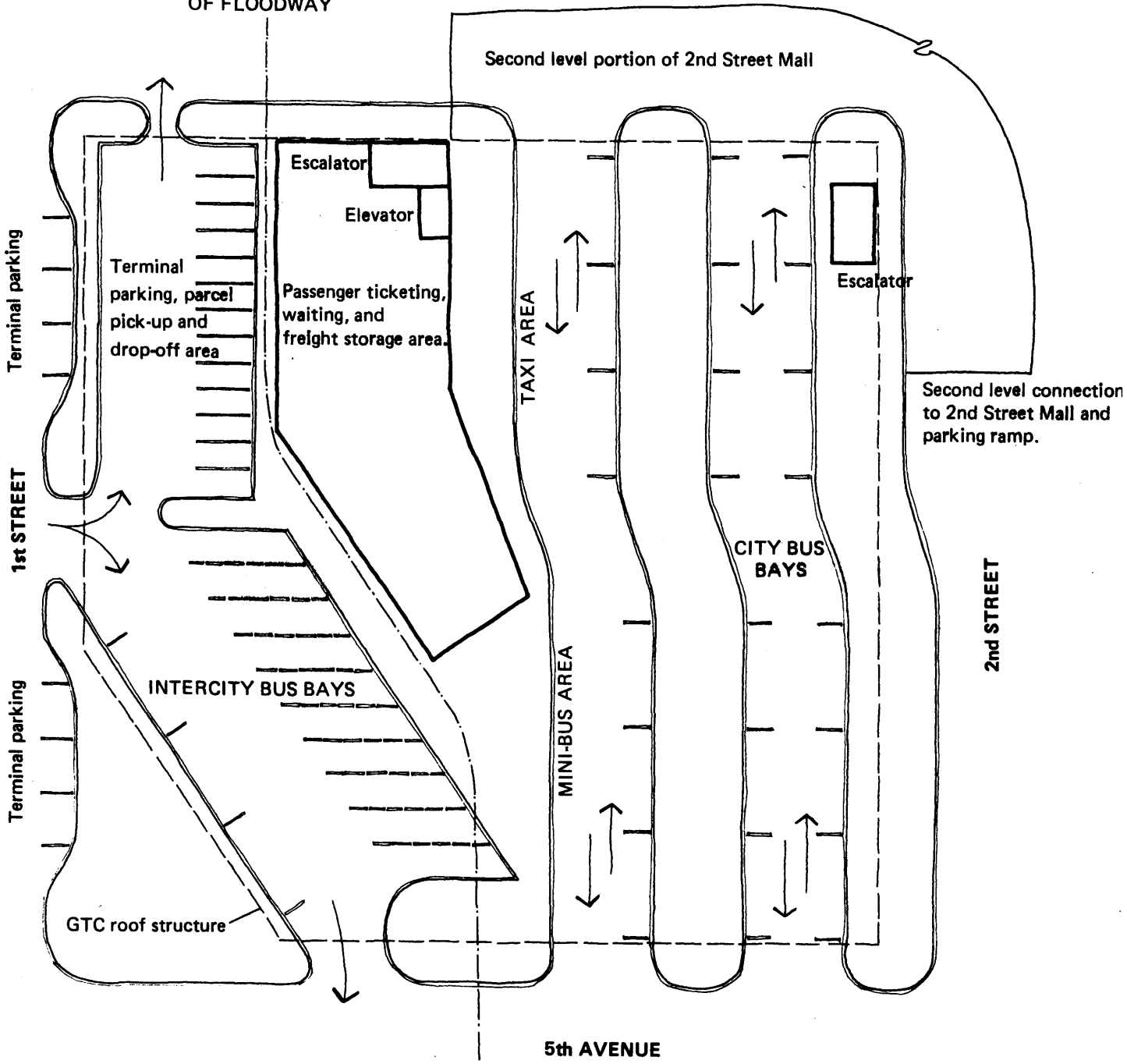
Parking. It is estimated that the GTC will require about 20 parking spaces for employees and short-term visitors. Eighteen parking spaces have been created on the west side of the terminal and along the east side of First Street.

Site Considerations. The site selected is partially within a floodway. While open-type construction will be permitted within the floodway (parking ramp-type structure), building masses and habitable quarters, such as office or retail at the ground level, probably would not be permitted. Hence, this area of the site was used for vehicle circulation and storage only.

4th AVENUE

APPROXIMATE LINE OF FLOODWAY

Second level portion of 2nd Street Mall



Terminal parking

1st STREET

Terminal parking

Escalator

Elevator

Terminal parking, parcel pick-up and drop-off area

Passenger ticketing, waiting, and freight storage area.

TAXI AREA

Escalator

Second level connection to 2nd Street Mall and parking ramp.

CITY BUS BAYS

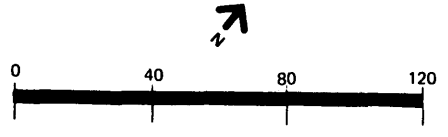
2nd STREET

INTERCITY BUS BAYS

MINI-BUS AREA

GTC roof structure

5th AVENUE



GTC ILLUSTRATIVE SITE PLAN Cedar Rapids, Iowa Figure 6

Land-use/Development. The GTC site lies at the terminus of a proposed first- and second-level enclosed retail mall on Second Street and will be fully integrated into the mall. As a result, second-story space above the ground transportation center is a prime area for retail activity anchoring the proposed mall. The advantageous location suggests that space be made available above the ground-floor level for major retailing activity in the Ground Transportation Center.

Davenport (Refer to Figure 7)

Bus Operations. Currently, the following intercity carriers serve the Davenport area: Greyhound Lines, Continental Trailways, Scenic Hawkeye Stages, River Trails Transit, Midwest Coaches, and Crown Transit. Analysis of their respective schedules indicates a potential for 10 buses to be berthed at the peak time. The city bus system is operated on a pulse basis, with all buses meeting at the GTC every half-hour. This would bring eight buses into the center. However, the city bus area has been designed for up to 12 buses in order to accommodate future growth in service. As in the case of Cedar Rapids, the "S" shaped platform area was used.

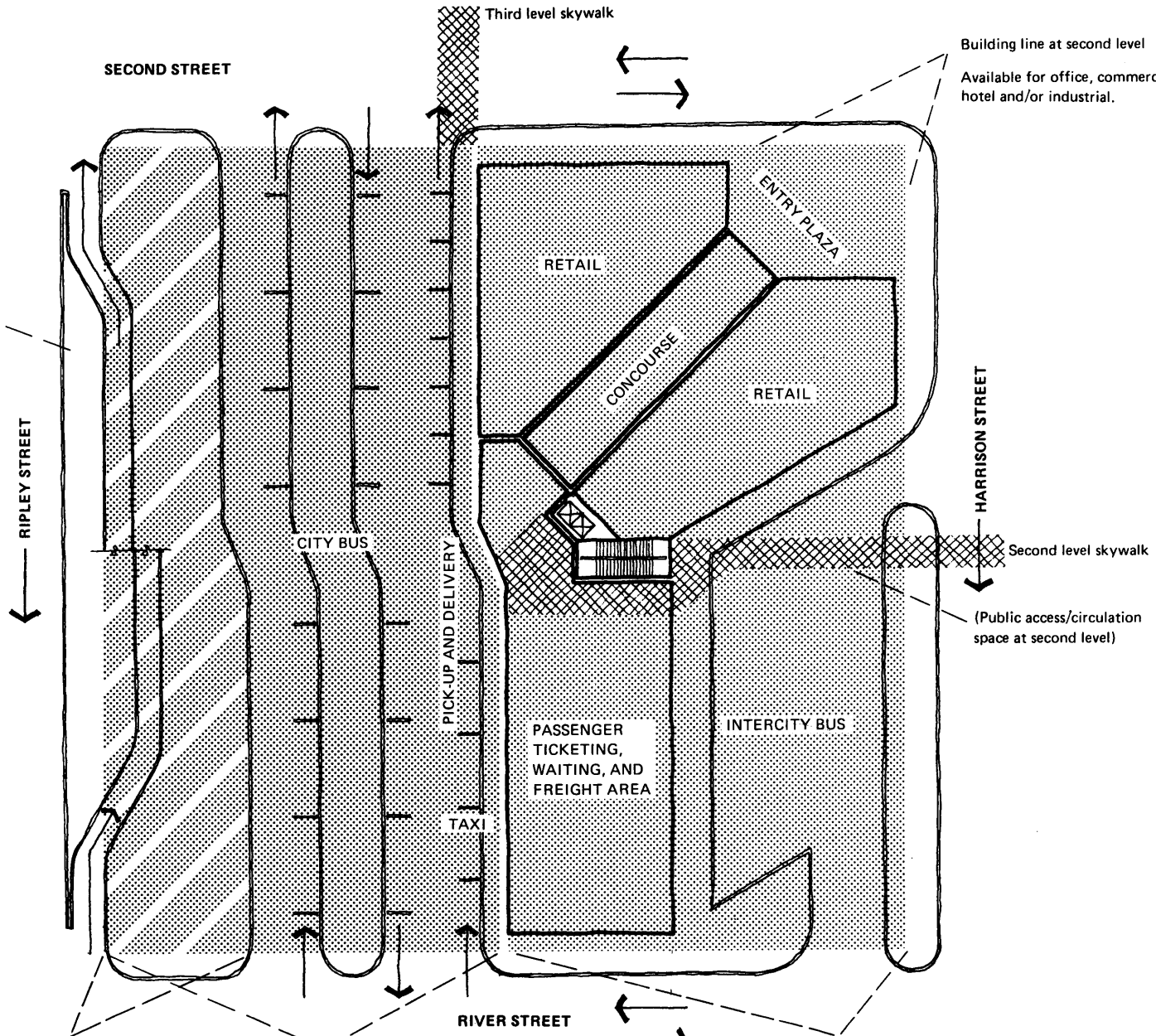
Other Transit Operations and Taxi. At the present time, the Handicapped Development Center operates one van, the Head Start Agency (10 minibuses) operates passenger service for low-income children to pre-school classes, and CASI-Great River Bend Advisory Council operates three vans for handicapped senior citizens. Each operation uses small van-type vehicles. Four spaces are reserved in the pickup/drop-off area of the passenger waiting area, as shown. Two taxi companies operate in Davenport--Checker Cab and Irish's Cab, Inc. A permanent cab stand for each company is allowed for in the plan, on the west side of the passenger waiting terminal.

Parking. About 20 parking spaces are estimated to be needed by GTC employees and short-term visitors. These spaces can be accommodated in the parking structure proposed as a part of this overall project.

Site Considerations. In order to accommodate the proposed upper-level parking space, a special access/egress system was designed along Ripley Street. This will require conversion of Ripley Street from a two-way street to one-way southbound. This should not prove to be a problem as Ripley is a minor street and could possibly be closed if necessary.

Land-use/Development. Fast-food operations are one clear possibility for incorporation in the GTC (at the northeast corner), due to site location, visibility, proximity to a major new office building, parking availability, transit ridership, and limited competition within downtown Davenport. A "food court" of a few different restaurant operations serving downtown business would be consistent with recent restaurant industry

Development of a parking ramp entrance and exit along Ripley will require:
 a) conversion of Ripley to ONE WAY, southbound, and
 b) channelization of parking ramp traffic.



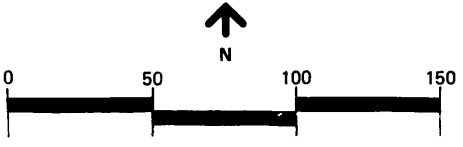
Building line at second level
 Available for office, commercial, hotel and/or industrial.

Second level skywalk
 (Public access/circulation space at second level)

Parking ramp entrance/exit areas (at ground level) and circulation area (at second level) not included in GTC project.

Available for public parking at second level; 125 spaces per level.

Potential private development on air rights.



GTC ILLUSTRATIVE SITE PLAN
 Davenport, Iowa
 Figure 7

trends and GTC site characteristics in Davenport. In this concept, three or four fast-food restaurants would share common seating and offer different but complementary food selections--e.g., health foods, Italian fare, and hamburgers. A hotel development at the GTC site may be possible and letters of interest are on file from developers. The letters indicate a willingness to consider joint development if the city provides land and parking on concessionary terms. However, incorporation of a hotel on the GTC site would probably require most of the retail space shown at the northeast corner, hence it would likely replace the food court uses.

Des Moines (Refer to Figure 8)

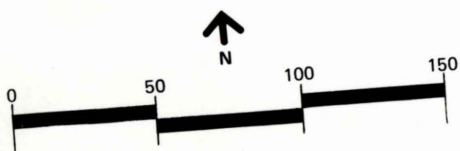
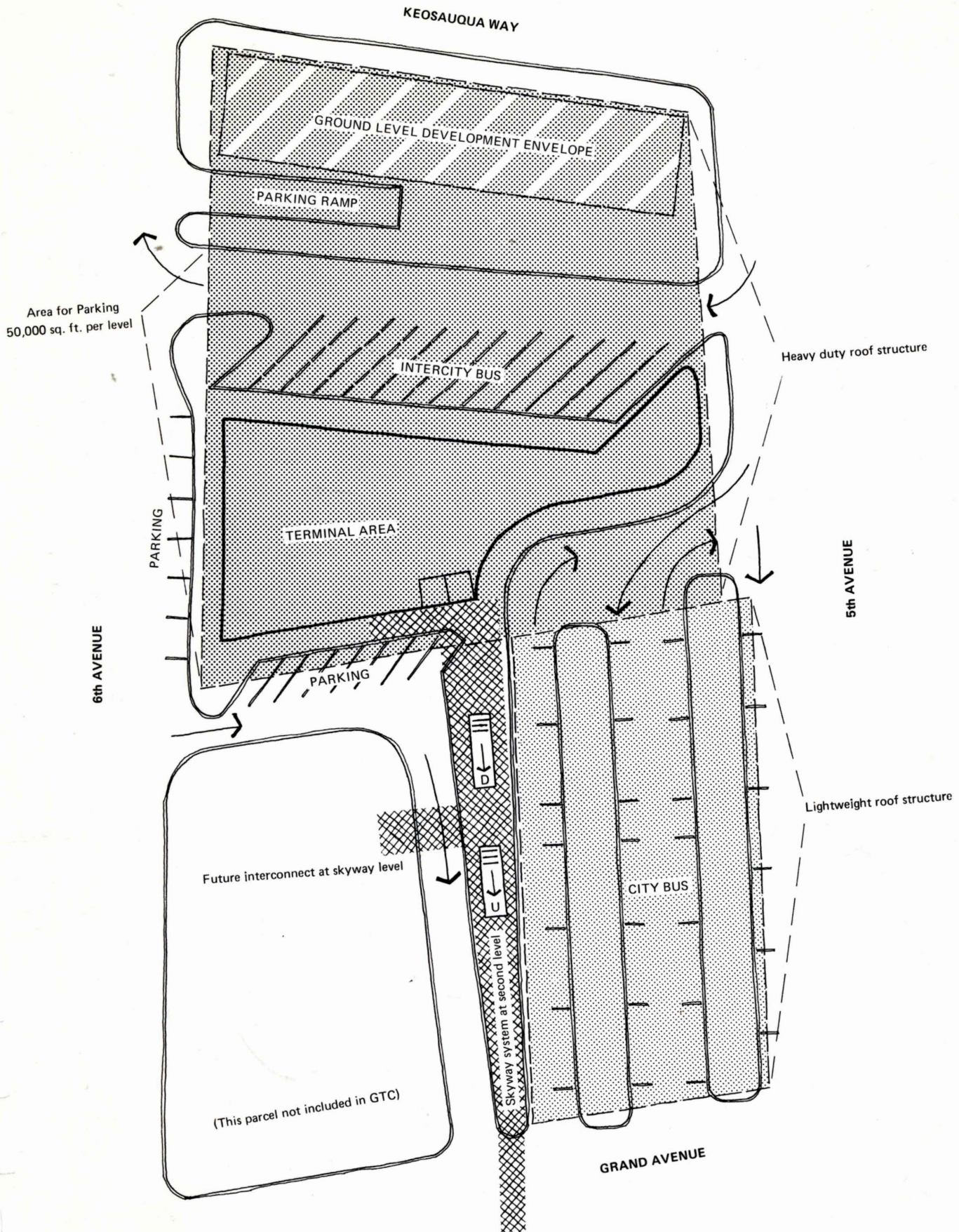
Bus Operations. Currently, the following intercity carriers serve the Des Moines area: Greyhound Lines, Continental Trailways, Jefferson Lines, Brothers Bus Company, and RFK Charter Coach. Analysis of their respective schedules indicates a potential for 16 buses to be berthed at the peak time (occurring around noon each day). The city bus system is operated on a modified pulse basis, with buses meeting at the GTC every 15 minutes during the peak period. This would bring 13 buses into the center. Service improvements to be implemented shortly will increase this number to 15. The city bus area has been designed for up to 20 buses.

Other Transit Operations and Taxi. Many agencies provide special transit services in the Des Moines area. These agencies serve elderly and handicapped people, using vans and minibuses. Space has been reserved for these services in the pickup/drop-off area near the southwest corner of the passenger terminal area. Two taxi companies operate in Des Moines, Capital and Yellow Cab, as well as an airport limousine service. A permanent stand for each company is allowed for in the plan--on the west side of the passenger terminal area.

Parking. It is estimated that about 30 parking spaces will be needed by GTC employees and short-term visitors. These spaces can be accommodated in the parking structure proposed as part of the overall project.

Site Considerations. The selected site lies on the north side of Des Moines's retail-office core. Accordingly, the city bus area was ultimately placed in the southern extremity of the site in order to position the city transit patrons as close to the major modes of activity (pedestrian destinations) as possible.

Land-use/Development. Des Moines, as the largest city in Iowa, presents some significant large-scale development opportunities in the central area. However, there are many active development programs under way to capture the potential which may exist. A major proposal for office buildings and a hotel is already under consideration. Other proposals for development along the main street also are being considered. In light of recent development patterns, it appears unlikely that the major office



GTC ILLUSTRATIVE SITE PLAN
Des Moines, Iowa
Figure 8

or retail development could be captured as part of the Ground Transportation Center at this location. Similarly, it is unlikely that hotel or market-rate housing could be captured, due to construction economics and competitive pressures for locations elsewhere in the downtown area.

Because the site is well located in proximity to other downtown development activities, both current and planned, some development opportunities appear likely. First, some limited fringe retail activity on the first floor, with street frontage, would be possible, with customers originating from the major office and hotel developments in the downtown area. This is planned for the northern frontage of the ground level and at the second level and above. Second, there has been a proposal to include a housing project for the elderly on the site. The site appears suitable for senior citizen housing, due to the availability of transit and proximity to other downtown activities. Shared facilities such as parking would be desirable in this instance. Again, access to such a housing project would be gained via the "ground-level development envelope" shown on the north end of the site.

Sioux City (Refer to Figure 9)

Bus Operations. Currently, the following intercity carriers serve the Sioux City area: Greyhound Lines, Midwest Coaches, Iowa Coaches, Jack Rabbit Lines, Iowa Stage Lines, and RFK Charter Coach. Analysis of their respective schedules indicates a potential for seven buses to be berthed at the peak time (occurring in midafternoon). The city bus system will be operated on a pulse basis, with all buses meeting at the GTC every half-hour. This would bring 13 buses into the center. The city bus area has been designed for up to 20 buses. (Note the "S" shaped platform area.)

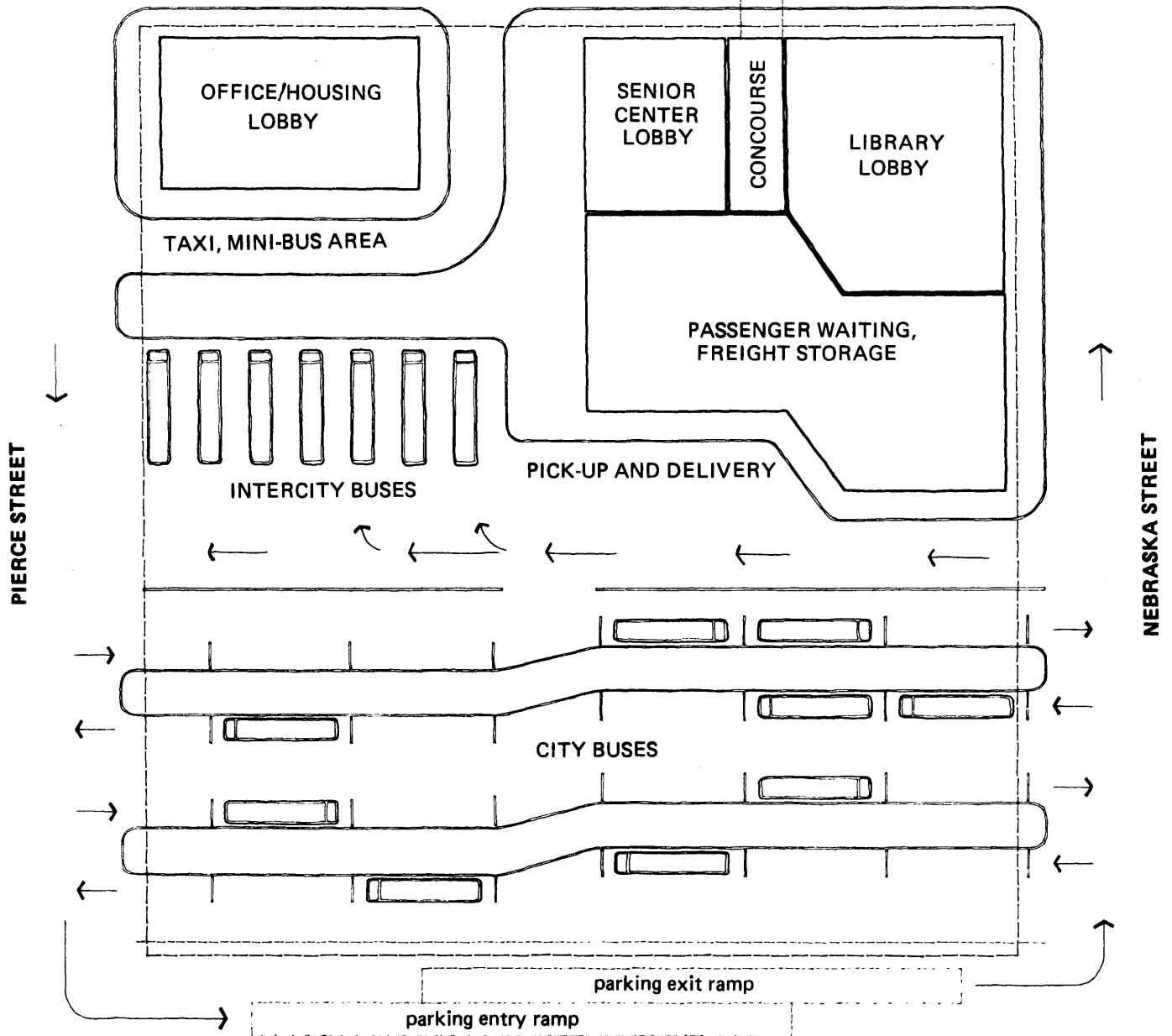
Other Transit Operations and Taxi. At present, Wheelchair Transportation, Inc. (three buses) and the Woodbury County Community Action Agency (six buses) operate special services for mobility-limited people. Each uses small van-type vehicles. The amount of activity to be generated at the GTC by these operations depends upon other activities that may be incorporated (such as the senior center). Two spaces are reserved in the pickup/drop-off area in the northwest corner of the site.

Two taxi companies operate in Sioux City--Checker Cab and Radio Cab. A permanent cab stand for each company is provided in the plan on the opposite side of the intercity bus platform area.

Parking. It is estimated that the GTC will also require about 20 parking spaces for short-term visitors and employees. These parking spaces can be accommodated in the parking ramp proposed as part of the GTC project.

3rd STREET

Second level skywalk connection



GTC ILLUSTRATIVE SITE PLAN
Sioux City, Iowa
Figure 9

Site Considerations. The Sioux City GTC site, as proposed, will be linked to a major parking garage (in the planning stage) on the north side of Third Street (between the GTC and the rest of the downtown). The GTC site probably will not be preferred for offices or for major retailing activities as it is off-center with regard to the spine of the downtown and lacks visual access because of the magnitude of the proposed parking garage.

Land-use/Development. Some quasi-public development appears suitable and possible for inclusion, due to general proximity to the downtown and to the parking structure. These land-uses include a new public library and a senior citizen center. The functional site plan presents ground-floor space allocations for these two facilities and indicates the possibility of office or other commercial space if a market for it develops.

4.
HOW MUCH WILL A GTC COST TO DEVELOP, AND HOW
CAN THIS COST BE FINANCED?

The cost of implementing a GTC involves land acquisition; relocation, demolition, site preparation, and construction. Unit cost factors for GTCs were developed as part of the planning for the Cedar Rapids, Davenport, Des Moines, and Sioux City projects. These unit costs were based upon data contained in the 1978 edition of the "Means" cost estimating guide and general construction cost estimates collected in Iowa during the course of this work. The costs are considered adequate for general financial planning; however, the scope of this study did not permit preliminary architectural-engineering design or detailed cost estimation. Accordingly, this must be done as an early step in the implementation process.

CONSTRUCTION COSTS

A fully enclosed GTC is recommended--that is, one in which the bus paths and berths and pedestrian areas are under cover. As such, the roof forms an ideal platform upon which the joint development opportunities previously described can occur. The structural components of such a GTC would necessarily be somewhat stronger than a freestanding GTC without upper-level facilities; however, the cost estimates used here assume that there is interest in creating a significant joint development. Estimated unit costs are listed below.

| | <u>Cost</u> |
|--|-----------------------|
| 1. Terminal (finished space) (This is the enclosed passenger, ticket sales, and freight area.) | \$35 per square foot. |
| 2. Housing/Office Lobby or Retail (unfinished space) (This is for non-transportation uses that will be on the ground floor and will be built as a part of the basic GTC.) | \$20 per square foot. |

- | | |
|---|---|
| 3. GTC Pavement, Curbs, Etc. (This covers the improvements built on the ground, i.e., the pavement surface, platforms, sidewalk areas, etc.) | \$5 per square foot. |
| 4. GTC Roof Enclosure | |
| a. Heavy-Duty Roof (This assumes the type of roof structure which would be appropriate support for other facilities at the second level and above.) | \$20 per square foot. |
| b. Lightweight Roof (This assumes that no facilities would be located at the second level or above; thus, only a lightweight "space frame" type of structural roof would be required.) | \$10 per square foot. |
| 5. Pedestrian Systems | |
| a. Escalator | \$50,000 each. |
| b. Elevator | \$50,000 each. |
| c. Second-Level Pedestrianway (enclosed) | \$30 per square foot. |
| d. Mall/Plaza Area (finished, including landscaping) | \$35 per square foot. |
| 6. Structure Parking | \$20 per square foot. |
| 7. Exterior Treatment (including lighting, signage, and landscaping) | Ten percent of all construction costs. |
| 8. Architectural and Engineering Fees (A&E) | Seven percent of the <i>total</i> construction costs (including Item 7). |
| 9. Contingency | Ten percent of the <i>total</i> (including A&E fees) should be added for design and construction contingencies. |

TOTAL PROJECT DEVELOPMENT COSTS

The key elements that must be taken into account in estimating the total project development costs are as follows:

- a. Land acquisition costs.
- b. Business/household relocation costs.
- c. Demolition and site preparation costs.
- d. Administrative costs.¹
- e. Design costs.
- f. Construction costs.

The costs involved in Items a through d are highly variable. These are obviously best obtained from the city's own legal, real estate, planning, and redevelopment offices. As an order-of-magnitude guide, Table 3 indicates the total estimated project costs for the four Iowa cities previously studied. (Note: These were developed using the functional plans shown in the previous chapter, the unit construction costs covered in this chapter, and local estimates of land acquisition, relocation, and demolition costs.)

FINANCING GTC PROJECTS

The U.S. Urban Mass Transportation Administration (UMTA) may fund up to 80 percent of the GTC project through several programs. The city bus portions of the project are eligible for UMTA Section 3 monies. The intercity portions are eligible for funds from the new "intercity terminal" program (Section 21), also based upon 80 percent federal participation.

In addition, Section 3(a)(1)(D) of the Federal Public Transportation Act of 1978 authorizes the Urban Mass Transportation Administration to assist urban development around transit stations and transit malls. In March, 1978, President Carter announced his National Urban Policy. Joint development is a major component of the transportation component of this policy; hence, the type of GTC project covered in this handbook may be eligible for funding from this source.

Under this policy two UMTA programs may be used to assist joint development. These are the Technical Studies Program (Section 9) and the Discretionary Capital Assistance Program (Section 3). Section 9 grants are available for planning, environmental analysis, and packaging of real

¹ Administrative costs will include the administrative time and direct cost incurred involved in grant management, property acquisition, relocation assistance, preparation of required environmental impact reports, conduct of public hearings/meetings, etc.

Table 3
 SUMMARY OF FOUR GTC PROJECT COSTS

| | Cedar Rapids | Davenport | Des Moines | Sioux City |
|------------------------------------|------------------|------------------|------------------|------------------|
| Site Acquisition | \$1,000,000 | \$1,000,000 | \$2,400,000 | \$ 920,000 |
| Relocation | 200,000 | 250,000 | 100,000 | 35,000 |
| Demolition and Site Preparation | 150,000 | 200,000 | 150,000 | 100,000 |
| GTC Construction | <u>3,623,210</u> | <u>3,338,905</u> | <u>4,642,920</u> | <u>3,656,070</u> |
| Total Project Costs: | \$4,973,210 | \$4,788,905 | \$7,292,920 | \$4,711,070 |

estate development projects, and the Section 3 grants are available for activities such as land acquisition, site preparation, provision and relocation of utilities, construction of pedestrian walkways, provision of open space, and other related activities. Financial assistance is being made available in the form of grants or loans. The federal grant ratio is 80 percent.

Eligible Section 3 activities include the organization of public or quasi-public development corporations, the packaging of development projects, environmental analysis, the acquisition and write-down of land, demolition clearance, the relocation of people and firms, the preparation of sites, and the provision or relocation of utilities. Also eligible is the construction of access links such as pedestrian walkways, parking facilities, and bus bays. The provision of open space and amenities also is eligible.

Priority in the approval of joint development applications under this policy will be given to projects which have these characteristics:

1. Located in distressed areas and/or communities (as identified by the Department of Housing and Urban Development for its Urban Development Action Grant Program).
2. Improve declining neighborhoods.
3. Reduce unemployment or provide other benefits for economically disabled.
4. Provide opportunity for minority business employment.
5. Provide social, economic, environmental, and physical benefits to the community.

6. Contribute to the municipal tax base.
7. Improve transit ridership.
8. Leverage substantial private investment.
9. Have secured, or are likely to secure, private developers and investors.
10. Provide for strong public and citizen support.
11. Include significant cash or other contributions by state or local agencies which are not matched by the UMTA contribution to the proposed project.
12. Can be shown to be cost-effective.

These project selection criteria are not conditions which must be met, but, rather, they will be used to evaluate proposed projects. To the degree proposals meet the criteria they will be given favorable consideration. A proposal which meets most but not all criteria may be approved.

Under maximum federal funding, 20 percent local share would be required. The Iowa Department of Transportation may fund a portion of this remaining local share. However, the extent of the state's participation in this amount will be determined upon Iowa DOT's review of the GTC plans and cost estimates from the applicant city and the availability of state funds for this purpose.

Local funding for the program could come from a variety of sources, including federal revenue-sharing funds, general revenues, Community Development Block Grant funds, general obligation bonds, tax increment financing, and parking revenue bonds (if parking were included in the project).

The city could also fund a portion of its capital cost share with "lease" revenue bonds. If private lease commitments are made prior to construction for retail, office space, hotels, or housing, revenue bonds could be sold to investors and subsequently retired by application of the lease revenues. This solution is only available if major private development commitments are achieved in advance of construction financing.

The non-transportation components of the project would be financed by a private development group(s).

OPERATIONAL REQUIREMENTS AND COSTS

The city government will determine the allocation of management responsibilities and costs for operation of the GTC. However, a city employee is expected to be given overall responsibility for facility management. This employee would have other, non-GTC duties, either in transit operations or public building management, with the GTC accounting for less than 25 percent of his/her time. Security for the GTC would be provided through normal city police monitoring.

Other operational costs directly related to the GTC include utilities, maintenance, and replacement reserve. The following costs have been estimated for a GTC in a typical Iowa City (in 1979 dollars):

| | |
|------------------------------|----------------------|
| Management (25 percent time) | \$ 5,000 - \$ 6,000 |
| Utilities | 15,000 - 20,000 |
| Maintenance | 12,000 - 16,000 |
| Replacement Reserve | <u>2,000 - 2,800</u> |

Total: \$34,000 - \$44,800

To offset operating costs, lease payments should be required from space users. Rents should be paid by intercity carriers, city bus, taxis, and other users. The formula to allocate rents to cover costs must be determined through negotiation between the city and prospective tenants, but could be based on the number of vehicles served, passengers served, freight shipped, terminal space occupied, etc. A key policy issue is whether the intercity bus companies should pay all operating costs associated with the GTC.

Other, non-transportation space on the GTC site, such as office development on air rights, should have all associated utility and operating costs paid by the private-sector lessee.

5.
ARE THERE ANY SPECIAL PROBLEMS IN DEVELOPING A GTC,
AND HOW CAN THEY BE DEALT WITH?

In addition to the conventional problems associated with developing any large public project in or near a downtown area, the type of GTC project discussed here presents two unique and significant aspects:

1. Joint planning and cooperation between several intercity bus companies and the city (or other designated public owner/operator).
2. Forging a public/private partnership for the planning, design, and financing of a joint development project.

In addition, because a joint development GTC project is a relatively new and unique use of UMTA and IDOT funds, the capital grant application and negotiation process is somewhat undefined.

COOPERATION WITH INTERCITY BUS COMPANIES

The major intercity bus carriers have indicated general interest and support for the GTC program, nationally and in Iowa. Numerous letters from various carriers are on file with the Iowa Department of Transportation and various cities already involved in the GTC program. However, specific planning in any community requires that community to work directly with local and national representatives of the intercity carriers. Their concerns include:

- Space and configuration of passenger waiting areas.
- Space and security for freight handling, and separation of this activity from the other carriers.
- Space and layout of ticket sales area.
- Roadway/street access to and from GTC.
- Amount of rent to be paid for use of GTC.

- Restrictions on use of any or all space.
- Terms of lease.
- Signage designating carriers' presence in terminal.
- Management agreements.
- Security.

The only way to deal with these issues effectively is to meet face-to-face with the responsible people in each carrier's organization, as early and as frequently as possible. *They must be involved in the planning process.*

JOINT DEVELOPMENT PLANNING/PACKAGING

The joint development program is intended to encourage a partnership between public and private agencies. State or local agencies will assemble land and provide the public services needed to stimulate development; private companies will provide the capital needed to construct office, retail, housing, and other urban development.

As early in the process as possible, the city must begin working seriously with those agencies and individuals that wish to be a part of the GTC complex. It is imperative that all of the major non-transportation users be committed to the project so that their staff members can be involved in the final planning and design process.

Coordination of public and private investments encompasses three activities: project development, construction, and management. Each activity can be coordinated using a range of roles, as depicted below.

Development Role

The developer coordinates planning, space layout, architecture, engineering, and financing (as appropriate). Typically, public officials develop public facilities and private developers are responsible for private investments. Joint development projects require participation by both sectors. Alternative ways to structure this participation include:

1. *Public development* with advice from commercial realtors and developers regarding private space to be leased upon construction. This is frequently used for relatively straightforward projects.
2. *Private development* of an entire complex. Normally, this is preferred if projects are complex and if local government is not sufficiently expert in major project development. Assuming public owner-

ship, the private developer would receive a fee for public facilities development.

3. *Public and Private Development.* If the public and private uses are spatially and functionally separate, each land-use can be developed separately, if planning and architecture are fully coordinated. While this method appears relatively easy, it is often inefficient and some of the advantages of joint development are lost.

Construction Role

A developer also often supervises actual construction of the facility and all related aspects, including construction payments. The construction of a joint public/private development may be handled in different ways:

1. *Public Supervision.* The local government could serve as the general contractor or retain an outside general contractor on a competitive basis. This is normal for public building construction, but may be unsatisfactory to private investors if substantial investment and a private ownership position is envisioned in the project. However, if the public sector provides a completed shell and foundations for air rights, this could be the most efficient alternative, and additional public expenditures may be recaptured through lease agreements and rent levels.
2. *Private Supervision.* If a private developer is used for the entire complex, he typically will also supervise construction for a fee. While this usually insures good coordination of public and private facilities, it often costs the local government more than public supervision, due to private development fees based on a percentage of construction cost. This alternative is more likely if significant private investments are envisioned, including air rights construction in private ownership.
3. *Public and Private Supervision.* If public and private uses can be spatially separated at each level, separate construction may be possible. It would be most efficient to coordinate construction with a single general contractor, but the local government should be careful to assure that the cost allocations for construction are fair.

Management

Facility management issues can be defined generally:

1. *Public Management.* Most public facilities are managed by public employees. Nonpublic space (e.g., an office building) could be managed by public employees if these facilities are in public ownership

and leased to private tenants. This may be preferred if private space commitments are comparatively small and separation of management, including janitorial service, security, etc., would be inefficient. In such an instance, lease rates to private users would be higher to recoup additional public management costs.

2. *Private Management.* Private facilities are generally best managed by private operators. Private space within a public building (e.g., offices) may be leased on a triple-net basis (private operators pay utilities, taxes, and insurance costs for their space). Private operators may also be responsible for all management costs.

Occasionally, a public facility is completely managed by a private management firm, if local government does not have the desire or capability to undertake such tasks.

FEDERAL/CAPITAL GRANT PROCEDURES

Because of the new and unique nature of a joint-development/GTC project, the best first step to take toward the acquisition of a federal capital grant is to meet with representatives of the Urban Mass Transportation Administration regional office in Kansas City, Missouri.¹ The purpose of this meeting should be to (a) thoroughly discuss the proposed project (a project feasibility and design study would be very helpful at this stage) and (b) gain an up-to-date understanding of UMTA's application procedures and documentation requirements.

Project Applications

Project applications designed to take advantage of the joint development policy should discuss the degree to which the project satisfies the criteria listed in Chapter 4.

At the writing of this handbook, the only definitive guidelines for the preparation of grant applications are those prescribed in UMTA's External Operating annual for Section 9 technical studies and Section 3 capital grants (the Section 3 capital grant application procedure will be discussed in some detail below). However, there are apt to be additional application requirements for GTC projects because of the potential of using Section 21 funding (intercity terminals) and special funds designated under the urban initiatives policy.

¹Mr. Lee D. Waddleton, Regional Director
Urban Mass Transportation Administration
6301 Rockhill Road, Room 303
Kansas City, Missouri 64131
Phone: (816) 926-5053

In general, an application for a capital grant should be prepared and submitted in two stages:

1. A *Preapplication* is for the purpose of ascertaining the probable eligibility of the applicant and project and for determining the availability of federal funds.
2. A *Final Application* sets forth engineering, planning, financial, and legal data in sufficient detail to permit a decision to be made as to whether or not the project is approvable under the Act.

Preapplication

The preapplication consists of three parts. Part I is the Preapplication form and is designed to supply basic applicant information and a brief description of the proposed project. Part II is the Project Budget form. Its purpose is to indicate the applicant's estimate of the federal assistance requested and the proposed sources of matching share. The program narrative statement is a brief description of the need, objectives, method of accomplishment, geographic location of the project, and the benefits expected to be obtained from the assistance.

Final Application

Following review of the preapplication, UMTA will advise the applicant concerning eligibility and the availability of funds and the procedure to be followed in preparing a full application. In most cases, a conference with the applicant will be requested before preparation of the final application is begun.

The format of the final application is divided into five parts, with the second part being omitted for the UMTA program. The final application is described briefly as follows:

1. Part I, Application form--this serves as an identification form and a brief abstract of the proposed project.
2. Part III, Budget Information forms--these forms have been designed to specify applicant's budget summary, object class categories, sources of applicant's matching share, and the project's forecasted cash needs.
3. Part IV, Program Narrative--the narrative contains necessary statutory and program requirements which have to be followed and completed by the applicant before UMTA can make a final determination of project eligibility.

4. Part V, Assurances--these are statutory requirements and regulations with respect to the grant which the applicant certifies to execute.

The National Environmental Policy Act of 1969 and the Urban Mass Transportation Assistance Act of 1970 require full consideration of the impact which a federally-assisted project may have on the environment. Therefore, the applicant will submit data and analyses of any environmental impacts which the proposed project may have. This environmental analysis should be initially submitted at the time of the preliminary application and updated, if necessary, to form part of the final application.

The analysis shall consist of:

1. A description of the proposed GTC project and its impact on the environment, including any maps, drawings, plans, or photographs that may help in understanding the impacts involved.
2. Discussion of any unavoidable adverse environmental effects of the project, as proposed, and a description of the steps that have been or will be taken to minimize these effects.
3. Identification of possible alternatives to a GTC, or any portion of the project having an adverse impact, which would eliminate that impact. Description of each alternative should include an assessment of the financial costs and the resulting environmental benefits.
4. A comparative analysis of the short-term and local impact on the environment and the long-term environmental consequences.
5. Identification of any irreversible and irretrievable environmental impacts or commitments of resources. This statement should include an analysis of the likelihood of adverse environmental impacts which would be caused by future increments of the proposed project.
6. A discussion of problems and objections raised by federal, state, or local entities and citizens, and the disposition of the issues involved. This may be added after the public hearing and local review process, in the final text of the required submission.

The environmental information requested must be provided in satisfactory form by the applicant because the Urban Mass Transportation Administration is required by law to make a finding that the proposed project is not likely to have an adverse environmental effect, or that there exists no feasible and prudent alternative to such effect and all reasonable steps have been taken to minimize such effect. Moreover, the Administration is required to determine that the applicant has given fair consideration to the preservation and enhancement of the environment and to the interest of the community in which the project is located.

Capital grant facilities are likely to have environmental impacts of the following kinds:

1. Effects on the amount of land required to be devoted to transportation and related purposes in the future; effects on population growth and dispersal within the area.
2. Increases or decreases in the traffic or congestion levels on streets and highways.
3. Division or disruption of established communities; division of an existing use (e.g., cutting off residential areas from recreation or shopping areas), or disruption of orderly, planned development.
4. Aesthetic or visual effects, especially on areas of unique interest or scenic beauty.
5. Displacement of people or businesses.
6. Changes in the ambient noise level.
7. Changes in the level or distribution of air pollution.
8. Destruction or derogation of parks, recreational areas, or historic sites.
9. Disturbance of the ecological balance of animal or natural resources.
10. Probability of altering or contaminating public resources (e.g., public water supply source, treatment facility, or distribution system), either during construction or in actual operation.
11. Physical disruption during construction.

The larger the project, the more likely it is to exhibit more types of impacts, combinations and cumulative effects of impacts, as well as severity of any particular or combined impact. The applicant's analysis of the impacts involved should be commensurate with the level of those impacts, and the cost of the analysis should be reasonable in relation to the project cost.

Relocation Requirements. If construction of the GTC project will make it necessary to displace persons from their homes or businesses, the project sponsor must have an adequate relocation plan, as required by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and regulations thereunder. All persons, families, businesses, or nonprofit institutions must be successfully relocated before any project construction work or preparation for project construction work can begin.

Special Needs of the Elderly and Handicapped. In the planning and design of GTCs, reasonable efforts should be made to ensure that the elderly and handicapped will be able to effectively use the facilities. A description of these efforts must be included in the Final Application.

Public Hearing. The applicant for a capital grant, or another public agency designated by the applicant with the concurrence of UMTA, shall hold a public hearing on the proposed project. This hearing shall be held before the final application is submitted to UMTA.

COORDINATION WITH IOWA STATE DEPARTMENT OF TRANSPORTATION

The Transit Division of the Iowa Department of Transportation has been involved in promoting the development of GTCs on a statewide level for nearly two years. State efforts have involved the reservation of capital funds and the conduct of a series of overview GTC studies in a number of cities, and the development of this handbook. Any community interested in developing a GTC should contact the IDOT Transit Division for technical assistance and possible funding for both technical studies and a portion of the project construction. For such assistance, contact:

Ms. Joanne Short, Director
Public Transit Division
Iowa Department of Transportation
State Capitol, Municipal Airport Office
Des Moines, Iowa 50319
Phone: (515) 281-4279

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