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Turnkey Park-and-Ride Development

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The Metropolitan Transit Authority (MTA) of Harris County, Texas, was approved in the summer of 1978. MTA faced enormous challenges in taking over the City of Houston transit system, HouTran, particularly because the new service area was more than twice the size of the HouTran area. The park-and-ride program provided a mechanism for quickly supplying the sprawling unserved outlying areas with transit service. Unfortunately, problems at previously leased park-and-ride lots mandated permanent construction of new facilities. The need to quickly replace existing leased lots while expanding the park-and-ride program into new markets precipitated the turnkey development process. State law in Texas permits MTA to purchase improved real estate through a proposal and negotiation process. Therefore, the turnkey process basically involved soliciting proposals for improved real estate and entering into earnest money contracts for the selected alternatives. On completion of construction, MTA bought a finished lot capable of immediate occupancy and operation. The turnkey process saved MTA time, money, and administrative headaches. These projects were funded totally by local funds. The benefits that evolved from the program warrant consideration of modifications to Urban Mass Transportation Administration capital grant procedures so that federal funding can also be procured for turnkey lots.

In July 1978, residents of Harris County, Texas, approved the creation of the Metropolitan Transit Authority (MTA). About 70 percent of the 2.4 million inhabitants of Harris County live within the limits of the City of Houston. MTA serves the central and western portion of this fifth-largest and fastest-growing metropolitan region in the United States.

MTA inherited the Houston Transit System (HouTran), which was owned by the City of Houston. Unfortunately, the transit system had not grown as rapidly as the city. When MTA began operation, only 43 percent of the City of Houston had transit service. MTA faced the enormous challenge of providing service to an even larger area (the MTA region is 1275 miles^2 compared with the City of Houston's 540 miles^2).

HISTORICAL DEVELOPMENT OF PARK-AND-RIDE

Park-and-ride service was introduced to the Houston region in the spring of 1977 with the opening of a 225-space lot in the I-45 (Gulf) Freeway corridor. This parking was a leased portion of an existing lot of a free-standing retail house.

The success of this service encouraged the Office of Public Transportation of the City of Houston to expand park-and-ride service further. Subsequently, parking was leased from a regional shopping center, a church, and a retail house. When responsibility was shifted to MTA, about 1000 park-and-ride spaces were available throughout the region and practically every space was full.

Park-and-ride was an important element of the Metro Plan adopted by voters at the time of the MTA formation. Providing park-and-ride service was a method of quickly supplying the far reaches of the MTA region with transit service. The demand for such service had been proved.

During its first year, MTA aggressively pursued expansion of park-and-ride through additional leasings. As before, these lots were typically located in portions of retail lots or in church lots. In 1979, almost 1100 additional spaces were added to the park-and-ride inventory.

Two permanent lots were also in development during 1979, both related to the I-45 (North) Freeway contraflow lane project, which opened in August 1979. One lot was being constructed by the Texas State Department of Highways and Public Transportation (TSDHPT) with TSDHPT funding and Federal Aid Urban System funds from the Federal Highway Administration. Planning for this lot began in early 1975, and the opening was in April 1980.

MTA purchased land and constructed the second lot, for which planning was initiated by the City of Houston in the summer of 1978. The lot was financed 100 percent by MTA funds generated by the 1 percent sales tax approved by the residents in 1978. This lot, the first facility owned and operated by MTA, opened in January 1980.

EARLY PARK-AND-RIDE PROBLEMS

Demand for park-and-ride was astonishing. Leased lots filled quickly. In lots where only a portion was leased, parkers began spilling over into areas not designated for park-and-ride. At other lots, vehicles were parked in grassy areas, in circulation aisles, and on neighborhood streets. In some leased lots, this resulted in property damage.

The first effort at resolving this problem was to enter into additional leasing arrangements at nearby locations. Such lots were not always available, and many times owners were reluctant to permit limited use of their property because of the problems evident at existing lots.

These problems were also apparent to the leasors. Owners were increasingly vexed due to decreased patron parking. At churches, park-and-riders were occupying the few designated staff spaces or blocking access to these spaces. It was becoming increasingly evident that these leased lots must be replaced by permanent ones if the service were to continue.

Some corridors and outlying communities in the MTA region were still unserved. Citizens in these areas were demanding park-and-ride service as an initial step in receiving the transit service they desired. Therefore, MTA also faced the problem of quick implementation of "seed" lots throughout the region.

Park-and-ride was only one element of the MTA program, and priorities had to be established. Total fleet expansion was essential, but the maintenance facility inherited from HouTran, constructed in 1910 and designed for trolley-car maintenance, was totally inadequate. Therefore, maintenance and maintenance facility expansion rightfully took engineering time precedence over park-and-ride expansion. Limited staff time was available for the park-and-ride program.

In summary, MTA needed to rapidly replace existing leased lots and construct seed lots in unserved corridors while minimizing the staff time involved. Experience had shown that the standard process of land acquisition, design, and construction would not meet the needs. A more creative approach was required.

TURNKEY PARK-AND-RIDE DEVELOPMENT PROCESS

The turnkey concept, as typically applied in the construction industry, involves the completion of a facility to operative status prior to its sale at a prearranged price. Thus, the buyer simply "turns the key" on purchase and may begin full use of the facility.

Usually, turnkey projects are built on land already owned by the buyer. MTA expanded this concept further by including both land and improvements in the final product.

The basic components of the turnkey process were established to help ensure that the challenges confronting the park-and-ride program could be met quickly and with minimal staff involvement. This process is outlined in Figure 1 and further described below.

Preparation and Publication of Request for Proposal

The request for proposal (RFP) contained three basic sections: instructions, information, and exhibits. The instructions provided potential respondents with the "rules" applicable to the submission process and the minimum contents required in the response. The contents of a proposal are covered more specifically in a later section.

The information section described basic desirable design characteristics of the lot or lots under consideration. A map depicting location parameters within the corridor was provided to limit the land search (an example location map is shown in Figure 2). Other location standards (e.g., site visibility and accessibility) were also described to assist developers in locating sites.

The approximate and desired design standards for each lot were also outlined. Standards included a maximum walking distance of 600 ft from parked cars to the bus loading area, a minimum of two lanes each of ingress-egress, separation of bus and automobile access, separation of kiss-and-ride and park-and-ride functions, and provision of a centralized bus loading area with shelter. Although these standards were not absolute, it was clear that they could be used, in conjunction with the location standards, in evaluating proposals.

Finally, a set of geometric standards for the actual site layout was provided. Ninety-degree parking was specified for the park-and-ride area, and angle parking was encouraged for kiss-and-ride patrons. Minimum aisle widths, turning radii, and stall sizes were designated as well as standards on horizontal and vertical clearance requirements and maximum acceptable grades within the lot.

Amenities required at each lot were also specified. These include a semienclosed shelter, benches, fences, and high-mast lighting.

A set of technical specifications for the construction of the facility was attached as an exhibit to the RFP. These specifications gave proposers detailed information related to the lot development parameters described above. Other exhibits attached to the RFP included forms that were to be submitted with the proposal and a copy of the suggested earnest money contract/purchase agreement for proposer's review.

Preproposal Conference

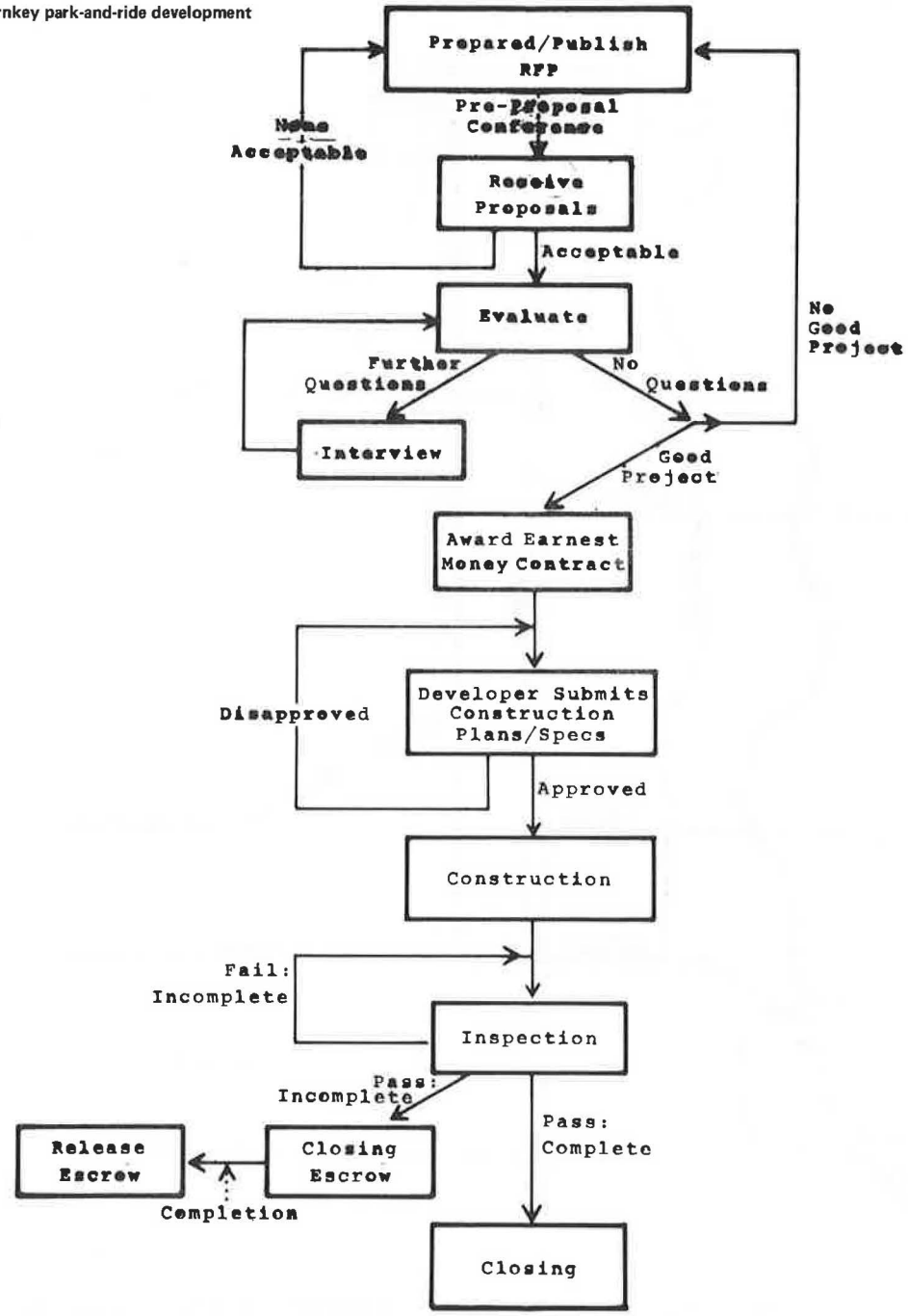
Prior to the due date for proposals, a preproposal conference was conducted to permit potential respondents an opportunity to get clarification on both the technical requirements and the evaluation process. Planning and engineering staff was available to answer questions.

Receive Proposals

Proposals were received and reviewed to ensure that minimum content requirements were met. These requirements were as follows:

1. Statement of qualifications--Proposers submitted a completed form that basically asked for an outline of applicable experience, a roster of employees committed to this project and a listing of professional and business references.

Figure 1. Flowchart of turnkey park-and-ride development process.



2. Proposal form--The proposal form and exhibits basically described the project, and the form was duly signed and attested by the proposer. Developers were requested to submit preliminary plans depicting the property boundaries, site topography, improvement plan layout with typical cross sections, and the site access plan. In support of the proposal, developers were also requested to provide a narrative description of the plan highlights to identify potential subcontractors, to list any exceptions to the standard specifications, and to address environmental impacts. The cost, broken down into land and improvement components, and the schedule were submitted on the proposal form.

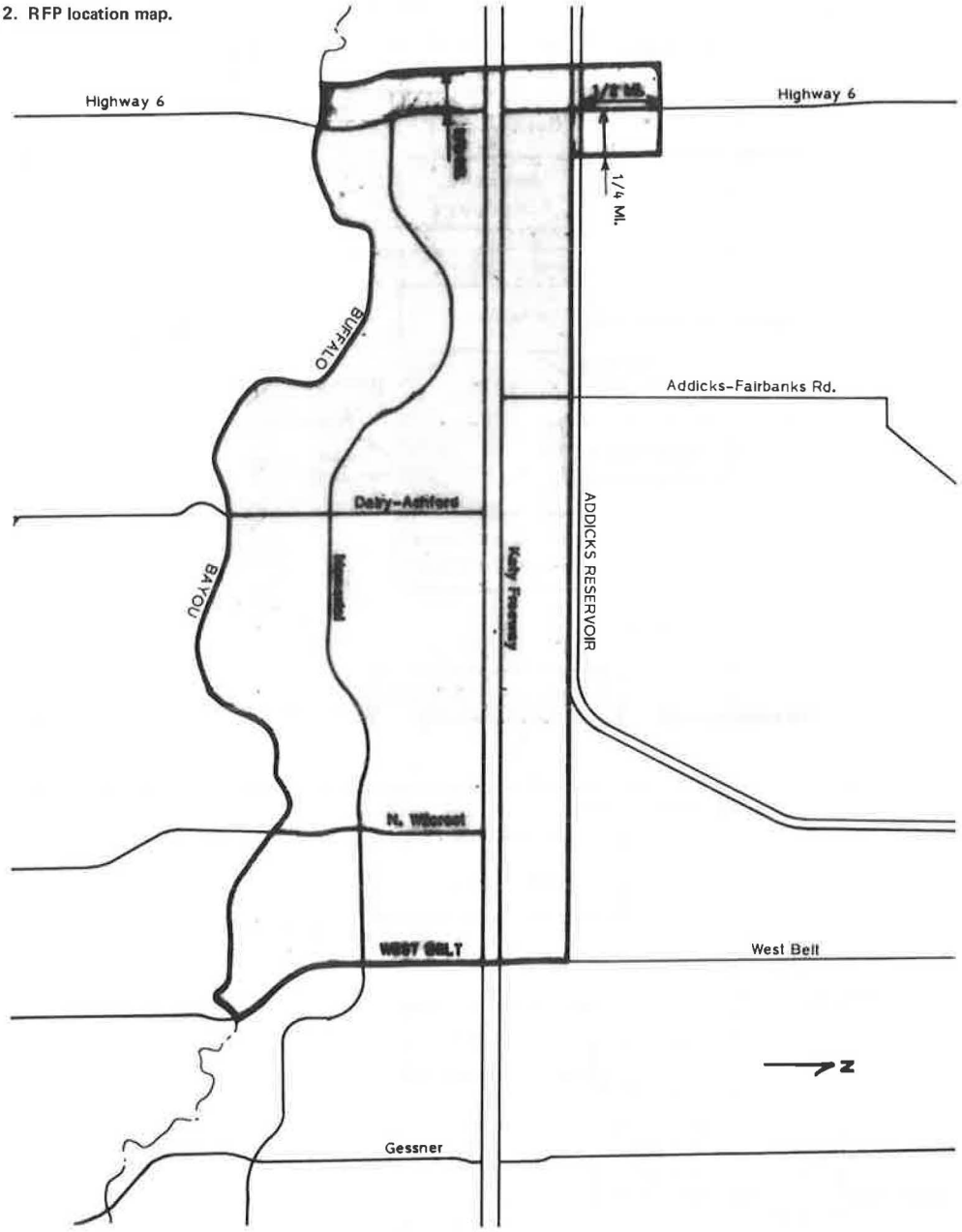
The level of detail of the plans submitted at the time of proposal was not critical. Schematic layouts that indicated proposed circulation and arterial interface, as well as estimated lot capacity, were sufficient at this point.

Evaluation of Proposals

An evaluation team was formed, including representatives from the planning, operations, right-of-way, and engineering departments as well as legal counsel. Thus, a broadly based analysis of the proposals could be conducted.

Each member of the evaluation team was supplied a copy of each proposal and a summary sheet for all proposals that listed key information--lot location, size, and costs. In preparation for the first team

Figure 2. RFP location map.



meeting, members were also asked to complete an evaluation matrix form similar to the one illustrated in Figure 3.

The purpose of the first meeting of the evaluation team was to cut down the number of proposals so that interviews could be conducted with those proposers selected. Potential sites could be eliminated from further consideration for a multitude of reasons: poor access, bad site drainage, unacceptably high improvement costs, or the fact that the site was outside corridor limits. Typically, one or two proposals were advanced to the second stage of evaluation.

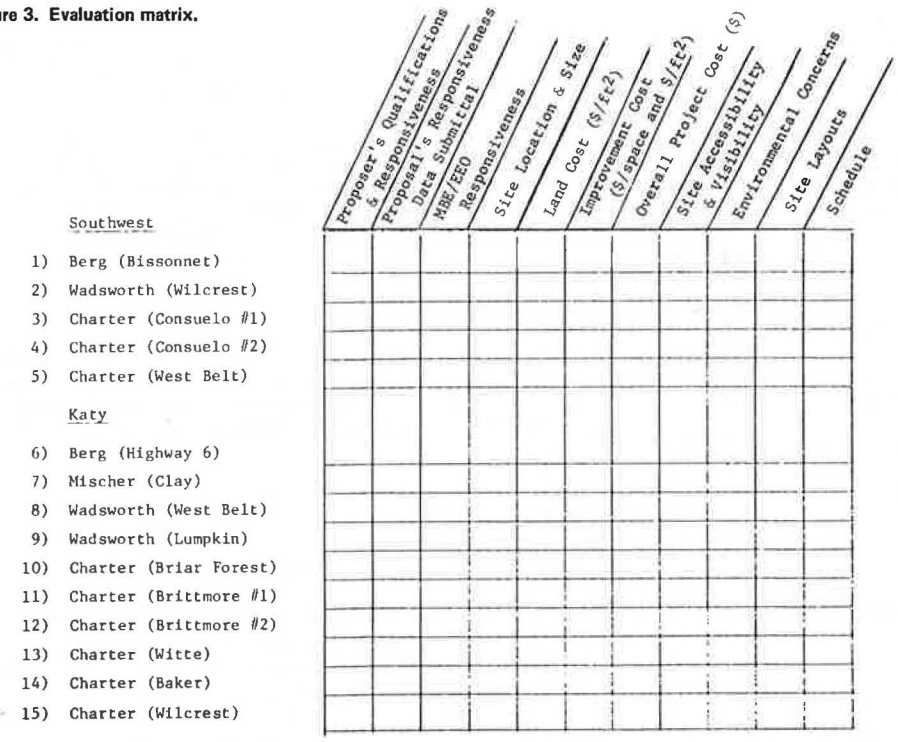
At the second team meeting, the proposers were invited to "sell" their package and answer questions generated by detailed review of the proposal. Proposers were often requested to quantify the cost impacts of desired modifications to the proposed improvements (e.g., use of concrete pavement instead of asphalt). Any unacceptable exceptions that were submitted with the proposal were discussed and resolved, if possible.

After the interviews, the evaluation team convened to select a proposal (or reject all proposals). Before the successful proposer was offered an earnest money contract, the costs were subjected to further analysis. Two independent appraisals were obtained to verify that the land cost was reasonable, and engineering staff representatives examined improvement costs. Finally, any special terms of the earnest money contract were negotiated.

Award of Earnest Money Contract

The successful proposer was then awarded an earnest money contract/purchase agreement by the MTA board of directors. This contract basically stated that MTA agreed to purchase the improved piece of real estate provided that the improvements met MTA approval. The developer was required to submit con-

Figure 3. Evaluation matrix.



struction plans to MTA staff for review prior to construction. Most of the lot design had already been discussed and reviewed during the evaluation process. To protect the developer, time limits were set on all staff reviews (typically 10 days), and failure to respond within this designated time legally indicated concurrence with the staff review.

Developers were required to submit lists of subcontractors so that their progress toward reaching minority business enterprise (MBE) goals could be monitored. The MTA affirmative action department provided assistance to contractors who sought additional MBE involvement.

The contractor was required to maintain files on field tests, to be submitted on closing of the purchase. Although MTA was granted the right to inspect the property during construction, the responsibility of construction management fell on the developer's engineer. Under the terms of the contract, the engineer was required to certify that the lot was completed in substantial compliance with the approved plans and specifications prior to closing. The developer then warranted the improvements for one year.

The earnest money contract specified the time and place of closing. The time was typically indicated by both a maximum time period from contract execution and a maximum time from project completion. The methods of recompense under buyer or seller default were specified as well as the required form of title insurance and distribution of closing fees. MTA was to receive a title commitment from the designated title company within 30 days of contract execution.

Lot Construction

Due to the design of the process, staff involvement was minimal during construction. Planning and engineering staff reviewed and approved construction plans. Staff also examined any changes resulting from reviews for permits, Staff also provided assistance in obtaining exemption from standards where necessary due to heavy bus volumes (i.e., nonstandard curb radii) by interfacing with appropriate government agencies on behalf of the developer.

Inspections

Approximately one week prior to completion, planning and engineering staff representatives conducted a preliminary inspection of the site. The purpose of this inspection was to identify any major defects or problems while providing time for alterations prior to the intended closing date. For example, sign locations could be field checked at this time. A punch list was then developed to expedite the final inspection.

Final inspection of the property was to occur as soon as the engineer was prepared to certify completion. At this time, lights and gates were tested to ensure that they were functional. Items on the punch list were checked also. On correction of any minor problems, the developer's engineer forwarded certification to MTA and the staff engineer recommended closing on the lot.

Closing

During the construction period, and particularly subsequent to the preliminary site inspection, MTA right-of-way staff in conjunction with legal counsel reviewed the owner's title commitment and subsequent easement documents and negotiated with the developer when problems were identified.

Closing on the lot usually occurred within one week of lot certification. Processing of required in-house paperwork to obtain the sizable check was accomplished in about three days. This quick turnaround was due to advance notification to the finance staff on completion of the preliminary site inspection.

At closing, the developer submitted field test documentation and product warranties to MTA. The transaction was completed with the turning over of the key. The lot was ready for operation.

Special Escrow Agreements

Occasionally, the lot was virtually complete but lacked a particular detail due to conditions beyond the developer's control. For example, landscaping was delayed due to unseasonably cold temperatures. In order to save the developer sizable interest charges on the land and development costs, escrow agreements were arranged so that closing could occur prior to 100 percent completion.

The developer's engineer certified that, with the exception of the specified items, the lot was substantially complete. MTA and the developer then entered into an escrow agreement in which a portion of the money due the developer at closing was escrowed by the title company. This money could be used by MTA to complete unfinished work after a specified period of time.

On completion of the excepted items, the developer's engineer certified total completion and MTA staff verified this at the site. The escrow fund was then released to the developer.

Because of high interest rates, the cost to the developer of sitting on a nearly completed site was extreme. Therefore, MTA agreed to this special arrangement as a courtesy to the developer.

RESULTS OF TURNKEY PROCESS

During FY 1981, a total of about 6350 new permanent park-and-ride spaces were constructed, which more than tripled the number of MTA-owned spaces. Because several of these lots replaced leased lots, the net gain of park-and-ride spaces was approximately 5000 spaces. Figures 4 and 5 illustrate the before-after locational distribution of park-and-ride lots, and Table 1 displays the before-after (1980 versus 1981) space distribution.

In order to quantify the time and cost savings implications of the turnkey process versus the standard design-bid-construction process, the experiences of turnkey construction were compared with data related to the MTA-constructed Kuykendahl lot. A discussion of these considerations follows.

Time Savings

Table 2 illustrates the development cycle time profile for five of the six turnkey lots. For comparison purposes, the time profile for the Kuykendahl lot (standard development process) was as follows:

Phase	Time
Design and land acquisition	5/78-5/79
Bid process	6/79-10/79
Construction	11/79-1/80

The average time between issuance of an RFP and completion of a turnkey lot was 8 months compared with a 20-month inception-to-completion cycle under standard construction processes. In the worst case, turnkey development required slightly more than half the time required by the standard process.

It is more difficult to quantify the staff time savings accruing from the turnkey process. The eval-

Figure 4. FY 1980 park-and-ride lot distribution.

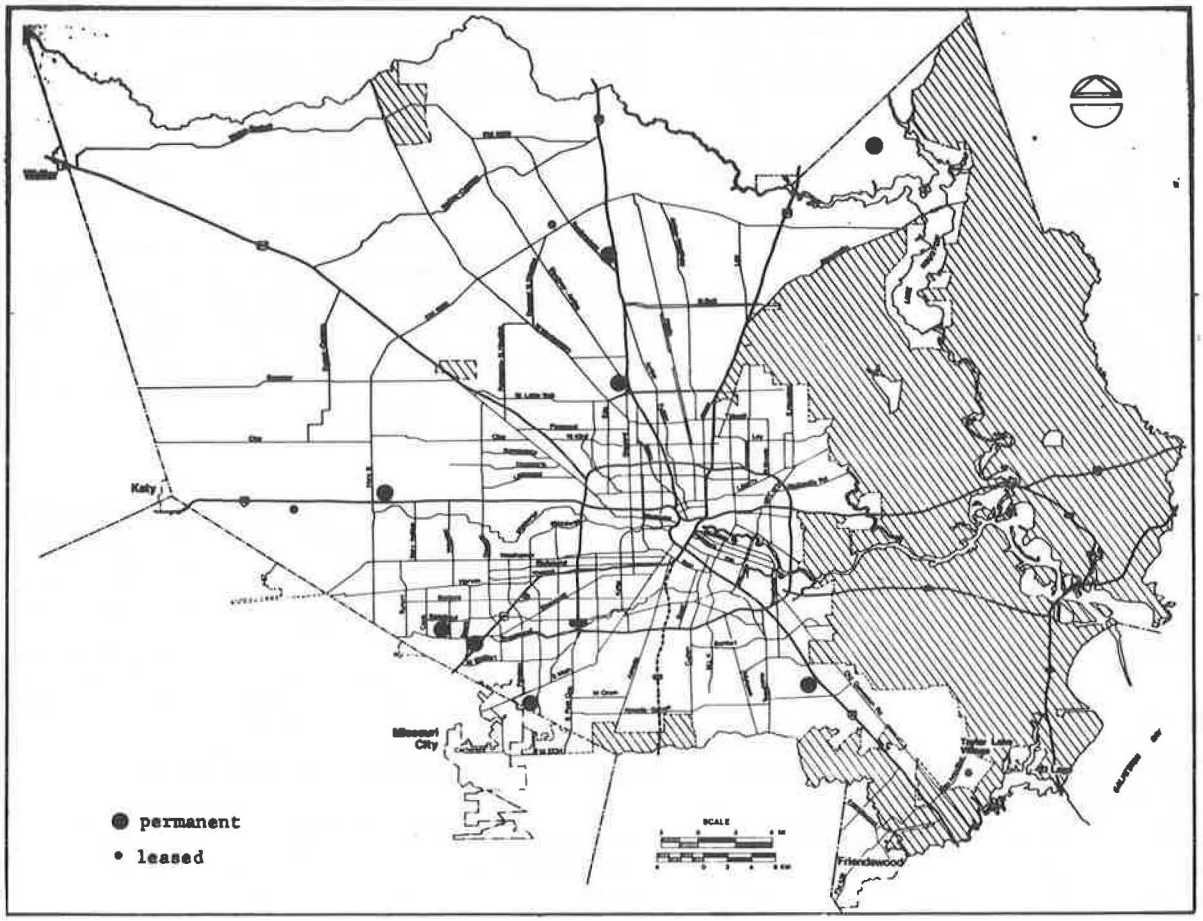


Figure 5. FY 1981 park-and-ride lot distribution.

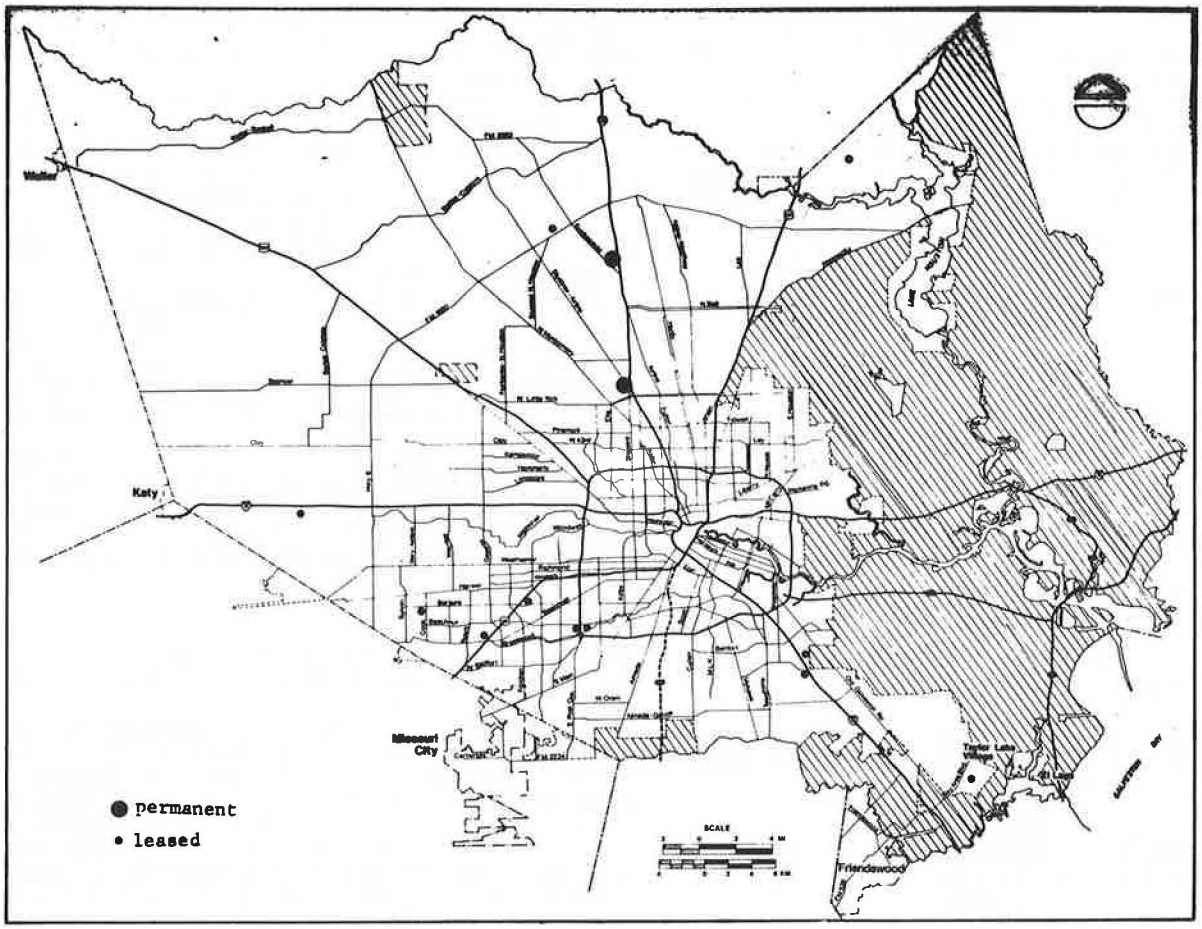


Table 1. Before-after distribution of park-and-ride parking space.

Location	FY 1980 Spaces		FY 1981 Spaces	
	Permanent	Leased	Permanent	Leased
North Shepherd	765		765	
Kuykendahl	1290		1290	
Champions		280		280
Kingwood[a]		200	940	
Gulf Freeway[a]		425	1000	
Clear Lake		200		200
Bellaire		150		150
West Loop		400		400
Westwood[a]		470	1213	
Alief[a]		300	1377	
Mason Road		270		270
Fondren Road[a]			779	
Katy/TX-6[a]			1083	
Total	2055	2695	8447	1300

[a]FY 1981 turnkey projects.

Table 2. Park-and-ride development cycles.

Lot	RFP Published	Contract Execution Date	Closing Date	Inception-to-Completion Time (months)
Kingwood	7/80	9/80	12/80	5
Gulf Freeway	7/80	9/80	2/81	7
Boone Road	7/80	10/80	3/81	8
Fondren Road	7/80	10/80	7/81	12
Westwood	10/80	1/81	6/81	8

uation team meetings consumed on the order of 10 person days, review and contract administration about 10 person days, and inspections and closing about 7 person days. The burden of lot design and construction management falls on the contractor's engineer, who then must certify that the lot was constructed in compliance with the plans and specifications approved by MTA.

In addition, the developer does the leg work in finding the property itself, and the competitive nature of the process encourages total coverage and consideration of all land options. As many as nine different sites were offered in response to the RFP for one corridor. This freed right-of-way staff to concentrate on other priority efforts.

Therefore, it is clear that the turnkey process achieved a time savings in two ways. First, lots were located, designed, and constructed in an average of 60 percent less time than under standard construction methods. This served the MTA goals of replacing leased lots quickly and providing new service to outlying areas of the vast MTA region.

Turnkey construction also reduced the staff time commitment to the park-and-ride development program. This permitted engineering, right-of-way, operations, and planning staff to devote more time to the numerous challenges facing the newly formed MTA without neglecting the program entirely.

Cost Savings

The cost of lot development can be broken down into two components: land costs and improvement costs.

In comparing costs of the standard and turnkey development processes, land costs may reasonably be assumed to be equal. In the turnkey process, there is no developer commission on the land itself. MTA pays what the developer paid.

For comparison of improvement costs, the Boone Road turnkey lot was selected as the lot most closely resembling the Kuykendahl lot. Both lots have about the same number of spaces and the same basic layout. The major difference between the lots is that the Boone Road lot has a concrete surface whereas the Kuykendahl lot has an asphalt surface.

The table below compares the improvement costs for the Kuykendahl and Boone Road lots (* = included):

	Cost ($)	
Item	Kuykendahl Lot	Boone Road Lot
Survey	4 000	-*
Design and construction management	292 470	-*
Construction	2 038 390	1 962 430
Total	2 334 860	1 962 430
Improvement cost per space	1 796	1 425

In order to present both sets of figures in an equal light, the following adjustments were made:

1. The cost of construction for the Kuykendahl lot was increased 10 percent to reflect approximate costs had the lot been paved with concrete.
2. Total costs for the Kuykendahl lot were increased 12 percent to reflect inflation impacts between the time of its completion (January 1980) and completion of the Boone Road lot (March 1981). This inflation figure is conservative.

On the basis of this comparison, turnkey costs were 20 percent less than standard costs. This does not consider cash-flow and interest implications. However, this, too, would favor turnkey construction since the entire cost of the lot (minus earnest money, which was typically $1000) is incurred at closing. Under the standard process, the land cost is borne early and design and construction payments are spaced out over the development phase.

The above-described reduction in staff time also translates into a cost savings for the turnkey method. In terms of amount of staff salaries and benefits expended, the turnkey process is again favored.

Therefore, it appears that the turnkey process also saves money, both in hard and soft costs. This was a somewhat unexpected but welcome benefit of the program.

DEVELOPER CONSIDERATIONS

The major problem that developers faced was obtaining required permits. One impedance to obtaining permits was the large radii required for bus driveways. These radii exceeded maximum curb return standards for driveways in the City of Houston. However, MTA staff was usually able to work with the City to obtain a variance.

More difficult was the case of permits for offsite improvements (e.g., median revisions and railroad grade-crossing improvements). This often required approval of more than one agency, which caused unplanned delay to the project. Because each lot was paid for in full at completion, developers carried finance costs throughout the project. Therefore, delay was costly.

Advance information to developers regarding the general area of interest can limit the amount of competition. Developers with advance word tie down the best properties prior to RFP publication. It is advisable not to discuss this information before the RFP is available to permit maximum competitive opportunity.

On balance, however, it is important to note that many developers have proposed on every available lot and continue to respond after having constructed a lot. The turnkey process must be financially attractive to the public sector as well as the private.

FUNDING

The construction of the six park-and-ride lots was funded with 100 percent local money. MTA is funded by a 1 percent sales tax.

Most transit authorities and operators do not have the solid local funding base that MTA enjoys. However, Section 5 capital grants and Section 3 money (the Urban Mass Transportation Act of 1964, as amended) can be used for park-and-ride development.

The turnkey process does not fit precisely into the Urban Mass Transportation Administration (UMTA) capital grant paradigm, since neither a site nor an improvement plan is fixed until a proposal is selected. The RFP process itself is more closely related to planning studies than capital procurements.

The time and cost savings associated with the turnkey process justify UMTA modification of the capital grant process to permit federal funding of such park-and-ride land acquisition and construction. The RFP and an estimated budget and schedule could be submitted, and the grant approval could then be made contingent on environmental review of the selected site. Environmental concerns enter into the evaluation process, and sites with no significant impacts can be selected to ensure that environmental approval can be expediently achieved.

The turnkey process is an example of the public and private sectors cooperatively implementing a transportation project to their mutual benefit. Surely this justifies whatever modifications may be required in grant procedures to permit federal funding of these projects.

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