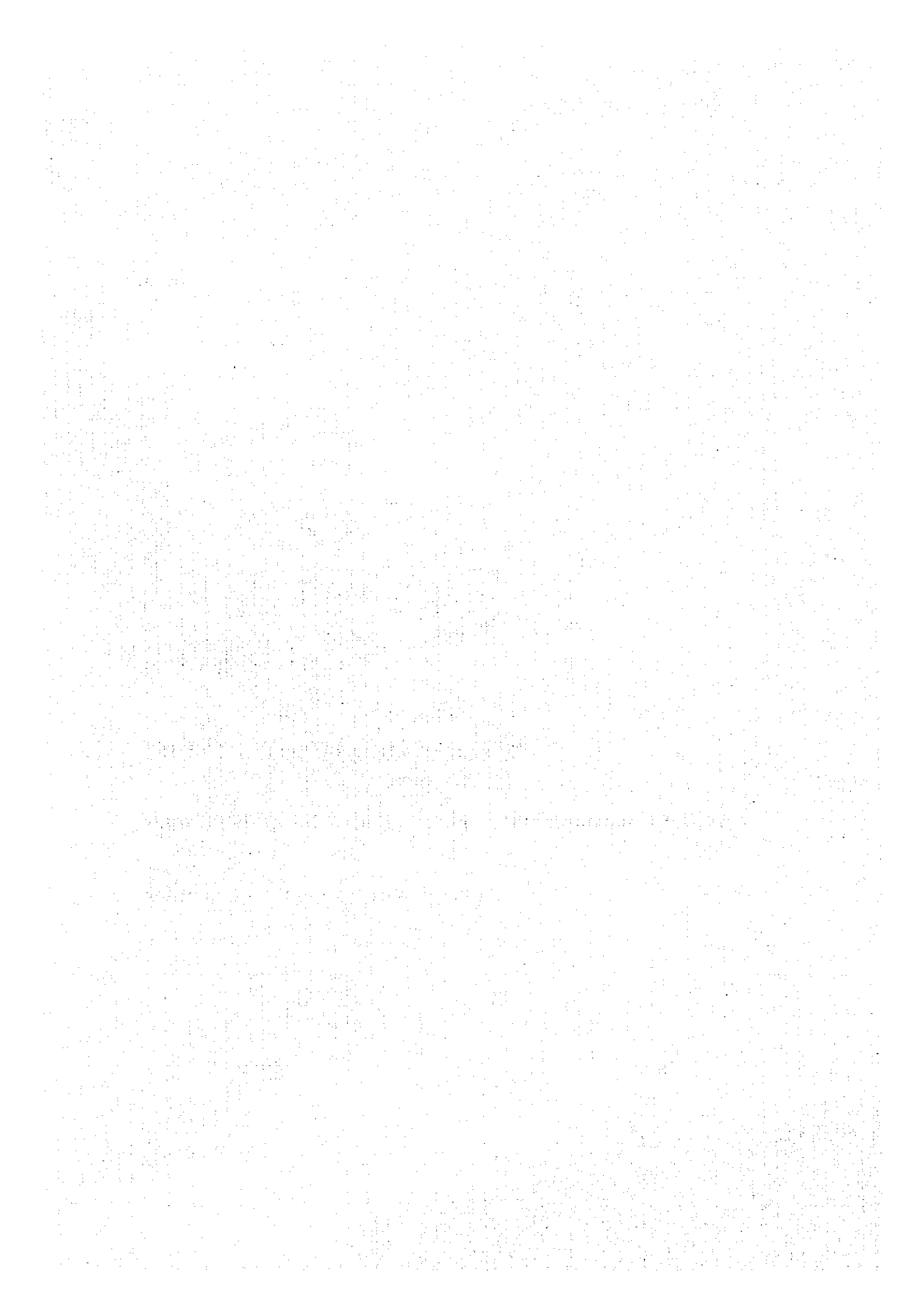


ANNEX G

ENVIRONMENTAL STUDY

Initial Environmental Evaluation for Alternative Routes

Location of Community Facilities



Initial Environmental Evaluation for Alternative Routes

1 Purpose of the Study

This section considers the results of Initial Environmental Evaluation for each of the alternative routes proposed by the main study. The purpose of this section is to prepare a basis for the selection of the optimum alternative route from the environmental viewpoints.

2 Alternative Routes

Several alternative routes have been proposed for the project road. These can be divided into two groups, large-scale alternative routes and small-scale alternative routes.

2-1 Large-scale Alternative Routes

Large-scale alternative routes for the project are optional detours off existing roads. Their main purposes are to save time by offering shortcuts and to promote rural development. The following four groups of alternatives have been proposed. These are shown in Figure 7.2.1.

(1) Paraguari - Villarrica Section

1) Segment Caballero - Tebicuary

- Alternative-1 : Short cut route along the existing railway
- Alternative-2 : Existing route along the existing road

2) Segment Tebicuary - Martínez (Crossing the Tebicuary River)

- Alternative-1 : Northern route
- Alternative-2 : Southern route

3) Segment Cardozo - Villarica

- Alternative-1 : Northern route along the existing railway
- Alternative-2 : Central route
- Alternative-3 : Southern route

(2) Branch Section to La Colmena

- Alternative-1 : Eastern route passing Tebicuary Mf
- Alternative-2 : Central route passing Hector L.Vega
- Alternative-3 : Western route connecting La Colmena and Ybytymf

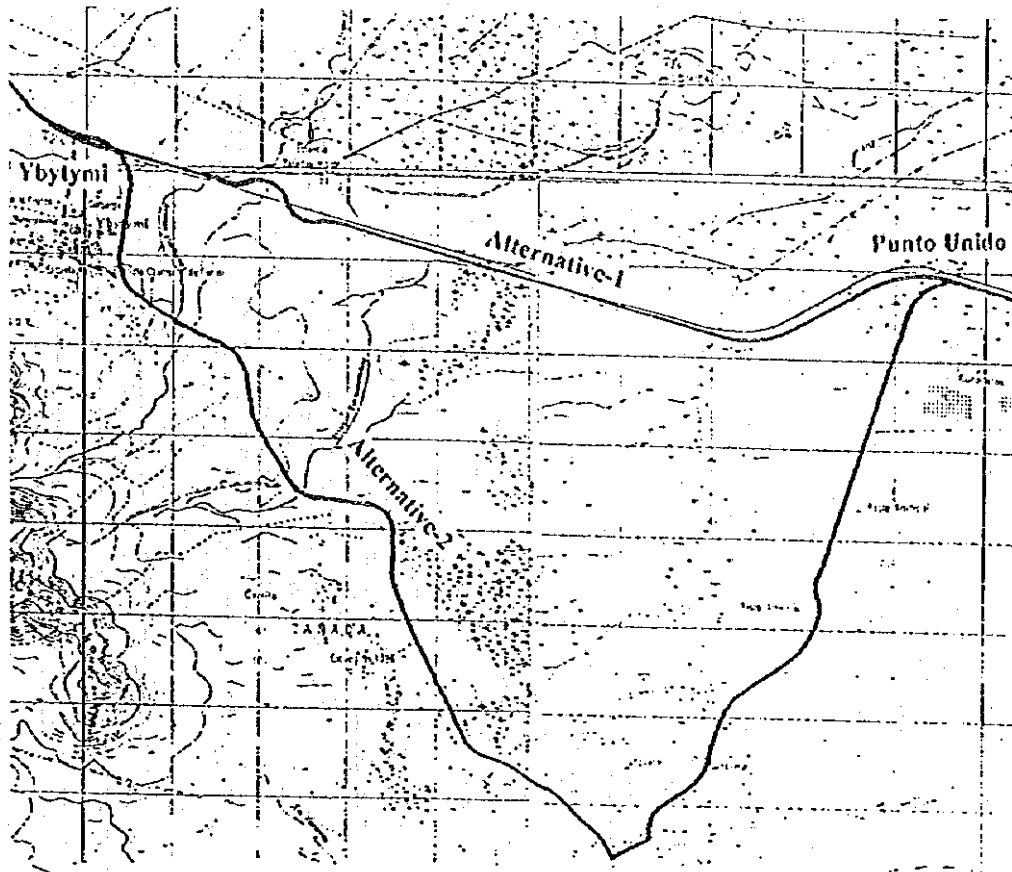


Figure 2.1 Major Alternative Routes between Ybytymf and Tebicuary

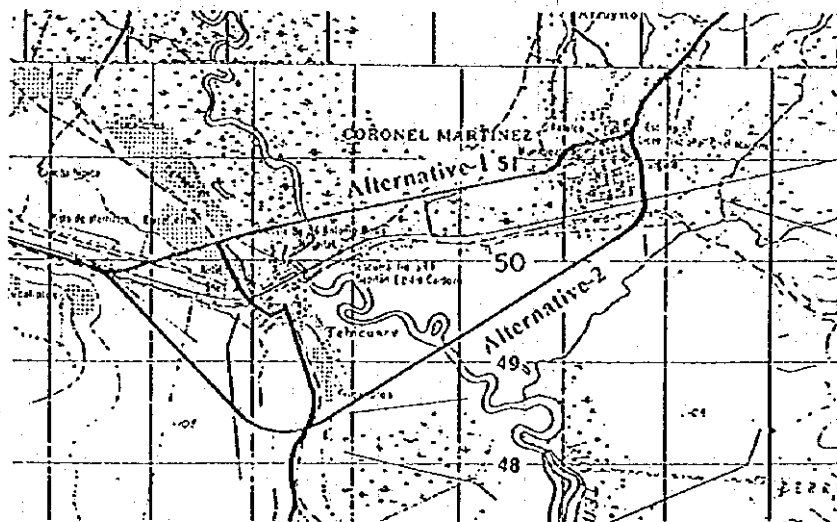


Figure 2.2 Major Alternative Routes crossing the Tebicuary Mf River

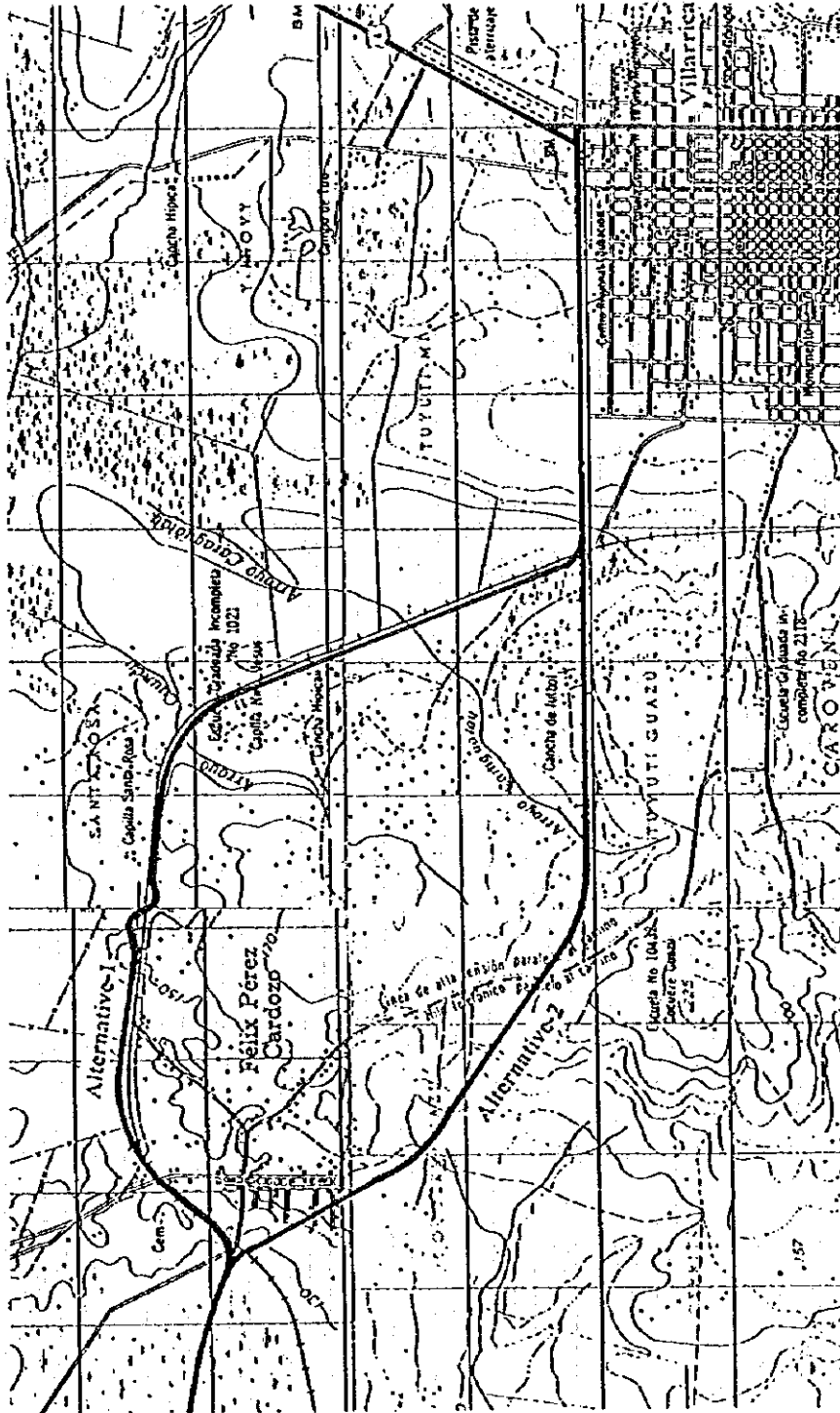


Figure 2.3 Major Alternative Routes between Cardozo and Villarica

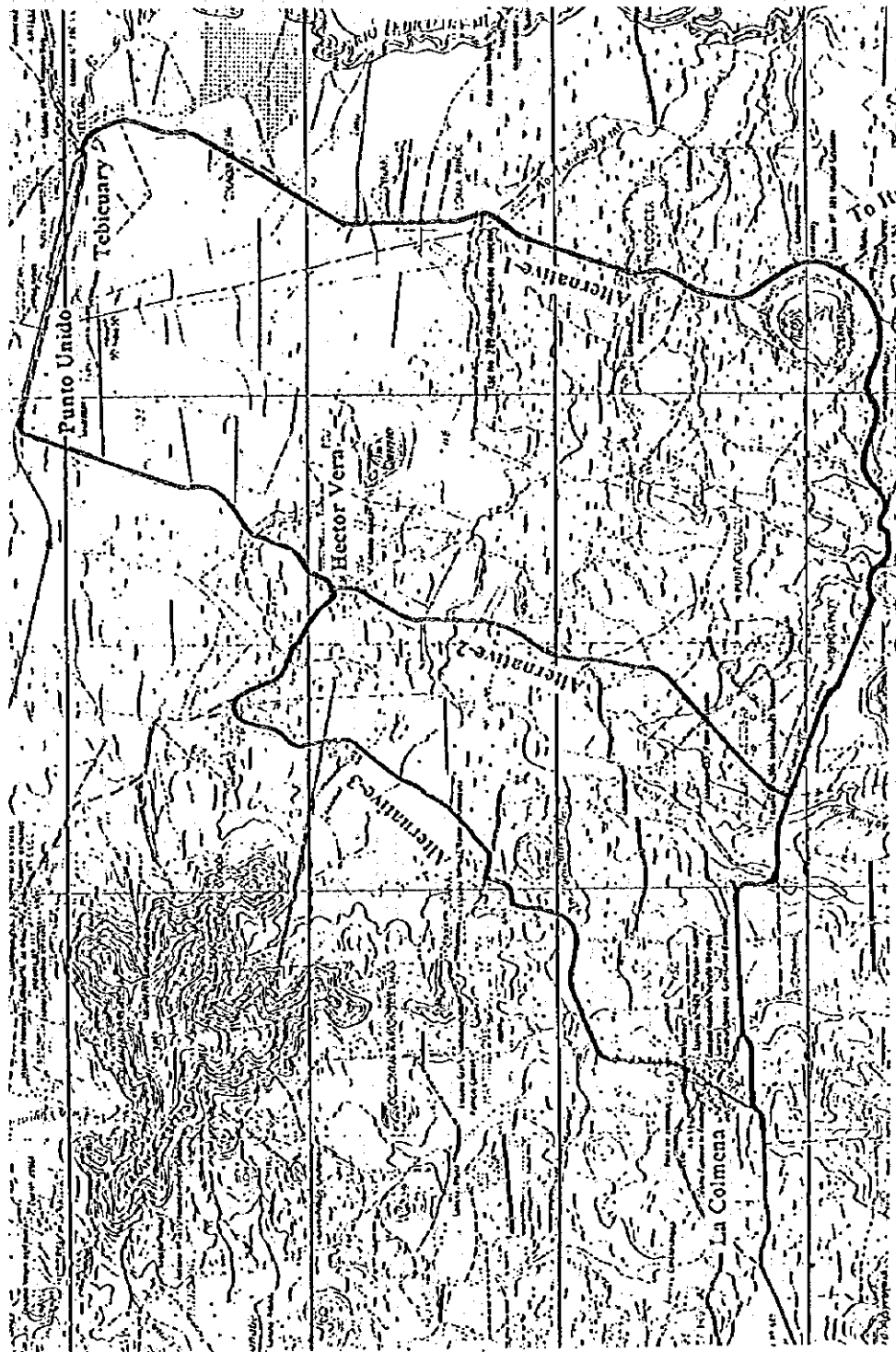


Figure 2.4 Major Alternative Routes for the Branch to La Colmena

2-2 Small-scale Alternative Routes

Small-scale alternative routes for the project are optional detours around the existing towns aimed at avoiding pollution caused by traffic flow through residential areas. The need for a detour in each town was investigated in the main study by utilizing traffic volume indicators that rank the various possible detours and assess their necessity. The following alternative detours were proposed for the following 6 towns. There are as shown in Figure 7.2.2. For all the towns, the existing road route was compared with the new routes.

(1) Paraguarí - Villarica Section

1) Paraguarí (town)

- **Alternative P1 : Northwestern route of the town**
- **Alternative P2 : Southern route of the town**

2) Escobar

- **Alternative E1 : Northern route of the town**
- **Alternative E2 : Southern route of the town**

3) Sapucaí

- **Alternative S1 : Northern end of the town**
- **Alternative S2 : Northern end but the second street of the town**

4) Caballero

- **Alternative C1 : Northwestern route of the town**
- **Alternative C2 : Southern route of the town**

5) Martínez

- **Alternative P1 : Northern route of the town**
- **Alternative P2 : Southern route of the town**

(2) Branch Section to La Colmena

1) Ybytymí

- **Alternative Y1 : Eastern route of the town**

2) La Colmena

- **Alternative LCI : Southern route of the town**

3 IEE for Large-scale Alternative Route

3-1 Evaluation Methodology

The methodology used in this study involved comparing the magnitude of impact for each of the environmental items affected by each of the alternative routes, using the IEE Scoping Format. For purposes of comparison, existing road routes were also evaluated as an alternative. Comprehensive evaluations would be ranked by the maximum rank among the affected environmental items.

3-2 Evaluation Results

The evaluation results were as follows, and the scoping format for each alternative is shown in Tables 7.3.1. to 7.3.4.

(1) Segment Caballero - Tebicuary

“Alternative-1 : Existing road route” is preferable to “Alternative-2 : Shortcut route along the existing railway”. The main reason is that Alternative-2 would have a greater negative impact on the hydrology of the area as well as economic activities in existing towns.

Table 3.1 Comparison of Alternative Routes in Segment Caballero - Tebicuary

Environmental Items	Alternative Routes				Remarks (+ = positive impacts, others are negative)	
	1	2				
(1) Natural Environment						
① Land (topography and geology)					Alternative-2 is the existing road Embankments will disturb water flow Deforesting, but on a small scale	
② Soil Erosion						
④ Water (hydrological situation)	B					
⑥ Fauna and Flora		C				
⑧ Landscape						
(2) Social Environment						
① Resettlement					Alternative-1=Negative impact on H.Vera Alternative-2=Promoting development of H.Vera Risk of inundation over railway (partially)	
② Economic Activities	B	+B				
③ Traffic and Community Facilities						
④ Split of Communities						
⑤ Cultural Property						
⑧ Waste Disposal						
⑨ Risk of Hazards	C					
(3) Living Environment						
① Air Pollution						Alternative-2 has less negative impact
④ Noise and Vibration						
Comprehensive Evaluation	B	C				

(2) Segment Tebicuary - Martfnez

There are no big differences between the two alternative routes in terms of impact on the natural environment. From a social environmental view point, both routes would have a impact on the economics of existing towns. If the new road passes along the same route as the existing road, it would be necessary to relocate sugarcane factory, which is the biggest one in Paraguay. Moreover, the new road would greatly affect the living environment of the town.

Evaluation results indicates that Alternative-1 northern route would be preferable because of the possibility of unexpected flooding. The bridge upstream would be safer than that downstream in such a case.

Table 3.2 Comparison of Alternative Routes in Segment Tebicuary - Martfnez

Environmental Items	Alternative Routes				Remarks (+= positive impacts, others are negative)
	E	1	2		
(1) Natural Environment					E=Existing road
① Land (topography and geology)					
② Soil Erosion					
④ Water (hydrological situation)		B	A		Embankments in lowlands
⑥ Fauna and Flora		B	B		Need for deforesting gallery woods
⑧ Landscape		B	B		New landscape of bridges and embankment
(2) Social Environment					
① Resettlement	A	B	B		Existing road= Need for resettlement
② Economic Activities					Alternatives-1 & 2 = Far from the existing road
③ Traffic and Community Facilities	B				
④ Split of Communities					
⑤ Cultural Property					
⑧ Waste Disposal					
⑨ Risk of Hazards			A		Risk of inundation of the existing town
(3) Living Environment					
① Air Pollution					
④ Noise and Vibration					
Comprehensive Evaluation	A	B	A		Alternative-1 has less of an impact

(3) Segment Cardozo - Villarrica

“Alternative-1 : Northern route along the existing railway” is preferable to “Alternative-2 : Southern route in the village area”. The main reasons for this are that Alternative-2 would have more negative impacts such as earth works in hilly areas and more roadside cuts. Moreover, this route would entail more resettlement of houses and a greater loss of agricultural lands. The latter alternative passes a flat existing road along the existing railway, and the right of way of the existing road is wide enough to permit a higher level road without the need for any resettlement.

Table 3.3 Comparison of Alternative Routes in Segment Cardozo - Villarrica

Environmental Items		Alternative Routes			Remarks (+= positive impacts, others are negative)
		E	1	2	
(1) Natural Environment					E=Existing road
①	Land (topography and geology)	B		B	Large-scaled cutting works
②	Soil Erosion	C		C	Possibility because of cutting
④	Water (hydrological situation)				
⑥	Fauna and Flora	B		B	Need to cut roadside vegetation
⑧	Landscape				
(2) Social Environment					
①	Resettlement	A		B	Need to relocate many houses
②	Economic Activities	B		B	Loss of cultivated lands
③	Traffic and Community Facilities				
④	Split of Communities	B		B	Split community by deep cut road
⑤	Cultural Property				
⑧	Waste Disposal				
⑨	Risk of Hazards				
(3) Living Environment					
①	Air Pollution	C		C	More contamination by steep slopes
④	Noise and Vibration	C		C	More noise by steep slopes
Comprehensive Evaluation		A	D	B	Alternative-2 has the fewest negative impacts

(4) Branch Section to La Colmena

Among the three alternative routes connecting La Colmena with Tebicuary, the most negative one is the Alternative-3 western route because the area through which this route would pass has a better natural environment than the areas through which other routes would pass. Regarding Alternatives-1 and -2, there are no differences in the magnitude of negative impacts. Evaluation results indicate that Alternative-1 is the most preferable route because it would have the most positive impacts, such as contributing to the promotion of sugarcane industries along the route, and offering the further potential of connection with the road in the southeastern area of Tebicuari-Mf.

Table 3.4 Comparison of Alternative Routes in Branch Section to La Colmena

Environmental Items	Alternative Routes			Remarks (+= positive impacts, others are negative)
	1	2	3	
(1) Natural Environment				
① Land (topography and geology)			B	All the alternatives are existing roads Large-scaled cutting works
② Soil Erosion			C	More possibility than Alternatives-2 or -3
④ Water (hydrological situation)	C	C		Embankments in lowlands
⑥ Fauna and Flora			B	Need to cut roadside vegetation
⑧ Landscape				
(2) Social Environment				
① Resettlement		B		Removal of roadside houses
② Economic Activities		B	B	Loss of cultivated lands
③ Traffic and Community Facilities	+A	+B		Promotion of sugarcane industries
④ Split of Communities	B			
⑤ Cultural Property				
⑧ Waste Disposal				
⑨ Risk of Hazards			--	
(3) Living Environment				
① Air Pollution				
④ Noise and Vibration				
Comprehensive Evaluation	C	B	B	Alternative-1 is the most beneficial for agricultural development

4 IEE for Small-scale Alternative Route

4-1 Evaluation Methodology

The methodology used to evaluate small-scale alternative routes was basically the same as that used for the evaluation of large-scale alternative routes. The difference point is that in the case of small-scale alternative route evaluation, only living and social environmental items were considered since small-scale alternative routes were proposed to detour towns and would have only a limited impact on the natural environment there.

The evaluation consisted of interviewing inhabitants of the affected area, the mayors of the towns, and other opinion leaders.

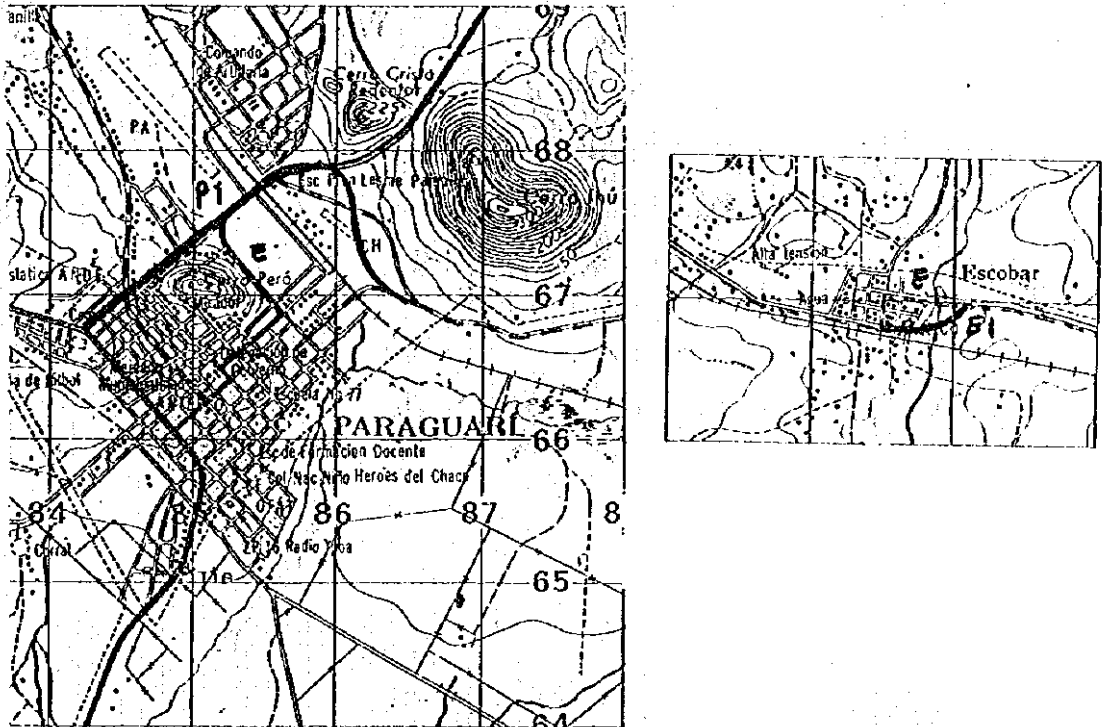


Figure 4.1 Small-scale Alternative Routes (I)

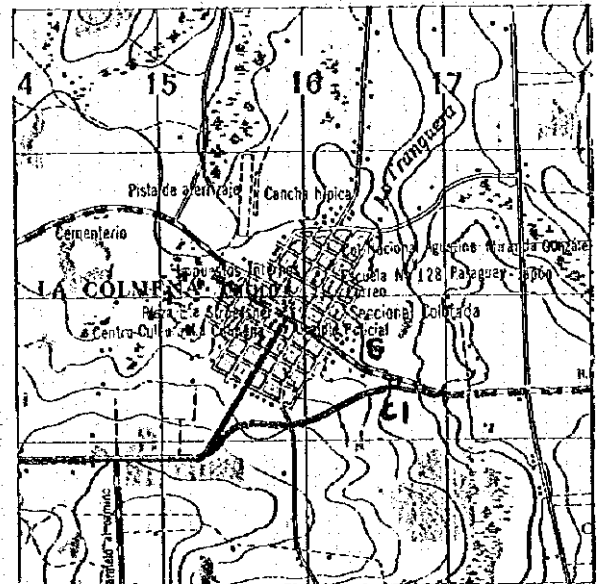
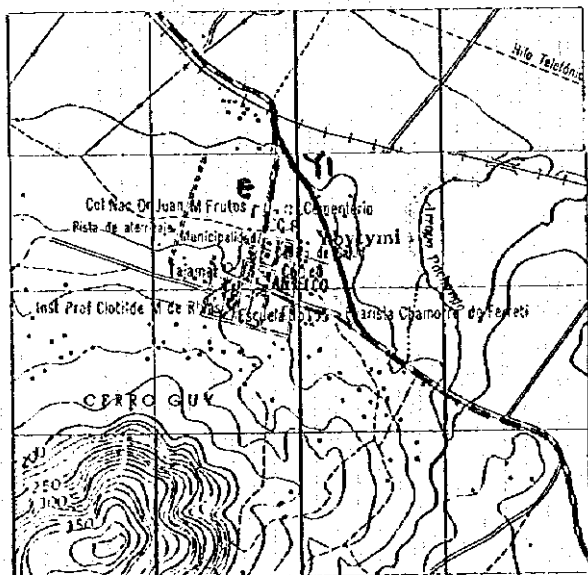
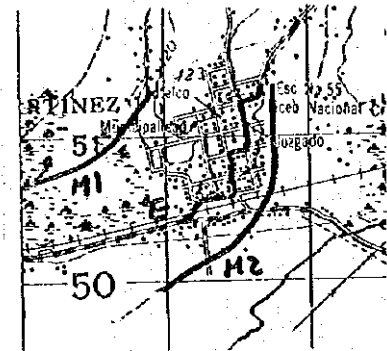
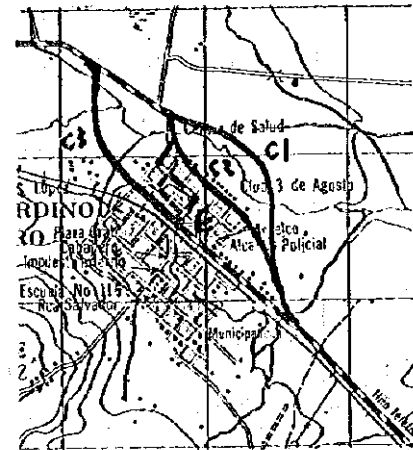
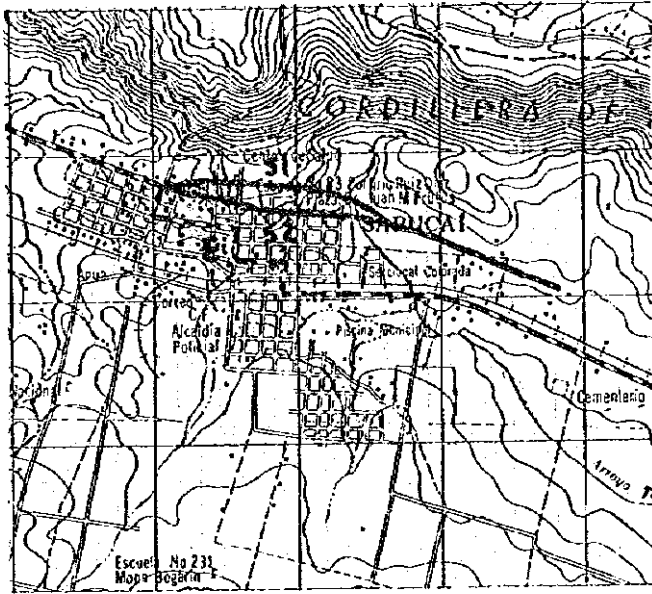


Figure 4.1 Small-scale Alternative Routes (2)

4-2 Evaluation Results

(I) Alternatives in Paraguari

Alternative routes off the existing road were proposed for Paraguari. Alternative P1 connects to the new road at the northern side of the town. Paving the existing road would have more negative impacts because it passes through a residential area, which means that it would be necessary to relocate some of the existing houses to secure at least 20m of ROW, and/or to develop environmental protection areas. On the other hand Alternative P1 runs along the road on the undeveloped northern side of the town. Accordingly, Alternative P1 is preferable.

However, the mayor of Paraguari did not prefer this alternative because a military camp is located in this area, and they use the area around the road for military purposes. According to the mayor, during training sessions, they conduct live-fire exercise, which would pose a threat to vehicles using the road. Therefore, before selecting this route it would be necessary to consult with the military to confirm the safety of this area for road development.

Nevertheless, Alternative P1 is preferable, subject to the above-mentioned consultations with the military.

Table 4.1 Comparison of Alternative Routes in Paraguari

Environmental Items	Alternative Routes			Remarks (+= positive impacts, others are negative)
	E	P1		
(1) Natural Environment				
① Land (topography and geology)				E=Existing road route
② Soil Erosion				
④ Water (hydrological situation)				
⑥ Fauna and Flora				
⑧ Landscape				
(2) Social Environment				
① Resettlement	A	C		Need for resettlement of roadside houses
② Economic Activities				
③ Traffic and Community Facilities	B	C		Close to schools and residential areas
④ Split of Communities				
⑤ Cultural Property				
⑧ Waste Disposal				
⑨ Risk of Hazards				
(3) Living Environment				
① Air Pollution	B	C		Contamination by traffic
④ Noise and Vibration	B	C		Possibility of traffic noise
Comprehensive Evaluation	A	C		Alternative P1 route is preferable

(2) Alternatives in Escobar

Alternative route (E1) to the existing road route was proposed for Escobar. This route detours around the eastern side of the town. Since Escobar is located close to Paraguarí, the major town in the Department, traffic volume would be much greater than in other towns. The existing road route bends several times around the eastern part of the town, and the alternative route is more beneficial because it avoids the negative impacts anticipated if the new road passes the existing road in the center of the town. Interviews have also confirmed that town residents prefer the alternative route.

Table 4.2 Comparison of Alternative Routes in Escobar

Environmental Items	Alternative Routes			Remarks (+ = positive impacts, others are negative)
	E	E1		
(1) Natural Environment				B=Existing road route
① Land (topography and geology)				
② Soil Erosion				
④ Water (hydrological situation)				
⑥ Fauna and Flora				
⑧ Landscape				
(2) Social Environment				
① Resettlement	A			Need for resettlement of roadside houses
② Economic Activities				
③ Traffic and Community Facilities	B			Close to schools and residential areas
④ Split of Communities	A			New roads in residential area of the town
⑤ Cultural Property				
⑧ Waste Disposal				
⑨ Risk of Hazards				
(3) Living Environment				
① Air Pollution	B			Contamination by traffic
④ Noise and Vibration	B			Possibility of traffic noise
Comprehensive Evaluation	A	D		Alternative E1 route is preferable

(3) Alternatives in Sapucaí

In Sapucaí, the existing road route bends several times through the grid-like streets of the town. It would cause many negative impacts such as air contamination and noise if the new road were to use the same route. Accordingly, two alternative routes were proposed.

One route would use the northern most street of the town (S1) while the other would use second northern most street (S2). The area around Sapucaí is the highest section of proposed new road. Therefore, the topographical impacts are expected to be greater than in other sections. However, both alternative routes are the same in this regard. The main point of the evaluation is that Alternative S1 passes near the community's watertank, close to the area's water sources. Therefore, Alternative S2 is considered preferable for Sapucaí. To implement Alternative S2, several houses would have to be relocated; however, according to the mayor, some municipal lands in the center of the town could be provided for relocation.

In addition to the alternative routes in Sapucaí, there were some objections from the people living in Mbocaya, a colony located between Sapucaí and Caballero. The main reason for their objection was that this route running north of the existing road would divide the community, and that it would pass across the pedestrian route to the school located next to the existing road. It will be necessary to consider traffic safety facilities for mitigating the impact.

Table / 4.3 Comparison of Alternative Routes in Sapucaí

Environmental Items	Alternative Routes				Remarks (+= positive impacts, others are negative)
	E	S1	S2		
(1) Natural Environment					E=Existing road route
① Land (topography and geology)		C	C		Earth works in mountain areas
② Soil Erosion					
④ Water (hydrological situation)					
⑥ Fauna and Flora					
⑧ Landscape					
(2) Social Environment					
① Resettlement	A	B	B		Need for resettlement of roadside houses
② Economic Activities					
③ Traffic and Community Facilities	B	A	C		S1 route passes the water tank of the town
④ Split of Communities	A		C		New roads in residential area of the town
⑤ Cultural Property					
⑧ Waste Disposal					
⑨ Risk of Hazards					
(3) Living Environment					
① Air Pollution	B				Contamination by traffic
④ Noise and Vibration	B				Possibility of traffic noise
Comprehensive Evaluation	A	A	B		Alternative S2 route is preferable

(4) Alternatives in Caballero

In Caballero, three alternative routes were proposed, from the north, Alternatives C1, C2 and C3. The existing road route passes through the town with bends similar to those in Sapucaí. Therefore, there would be many negative impacts if the new road used the same route as the existing road.

Of the three routes, Alternatives C1 and C2 were expected to have negative impacts that would definitely prevent their development. Along Alternatives C1, some archeological sites exist. Residential areas are located along Alternative C2. Therefore, the new road would negatively affected its environment.

As a result, Alternative C3 is the most preferable route at this time, even though it could divide the community because it passes through the center of the town along the railway in an east-west direction. However, the ROW of the existing route along the railway is considered to be wide enough to develop a new road as long as the minimum width, 20 m, is adopted as the ROW. It will be necessary to consider traffic safety facilities to mitigate the impact.

Table 4.4 Comparison of Alternative Routes in Caballero

Environmental Items	Alternative Routes				Remarks (+ = positive impacts, others are negative)
	E	C1	C2	C3	
(1) Natural Environment					E=Existing road route
① Land (topography and geology)			-		
② Soil Erosion					
④ Water (hydrological situation)					
⑥ Fauna and Flora					
⑧ Landscape					
(2) Social Environment					
① Resettlement	A				Need for resettlement of roadside houses
② Economic Activities					
③ Traffic and Community Facilities	B		A		C2 route passes through a residential area
④ Split of Communities	A				New roads in the residential areas of the town
⑤ Cultural Property		A			C1 route passes by an archeological research site
⑧ Waste Disposal					
⑨ Risk of Hazards					
(3) Living Environment					
① Air Pollution	B			C	Contamination by traffic
④ Noise and Vibration	B			C	Possibility of traffic noise
Comprehensive Evaluation					Alternative C3 route is preferable

(5) Alternative in Ybytymf

In Ybytymf, only one detour has been proposed. The existing route passes through the town and bends only one time. Along the existing road, there are many community facilities. Therefore, the alternative route (Y1) is preferable to avoid the negative impacts of increased traffic flow in the future.

Table 4.5 Comparison of Alternative Routes in Ybytymf

Environmental Items		Alternative Routes				Remarks (+= positive impacts, others are negative)
		E	Y1			
(1) Natural Environment						E=Existing road route
①	Land (topography and geology)					
②	Soil Erosion					
④	Water (hydrological situation)					
⑥	Fauna and Flora		C			Need for cutting roadside vegetation
⑧	Landscape					
(2) Social Environment						
①	Resettlement	A				Need for resettlement of roadside houses
②	Economic Activities					
③	Traffic and Community Facilities	B				Existing route passes in front of several community facilities
④	Split of Communities	A				New roads in the residential areas of the town
⑤	Cultural Property					
⑧	Waste Disposal					
⑨	Risk of Hazards					
(3) Living Environment						
①	Air Pollution	B				Contamination by traffic
④	Noise and Vibration	B				Possibility of traffic noise
Comprehensive Evaluation		A	D			Alternative Y1 route is preferable

(6) Alternatives in Martínez

Alternative routes in Martínez depend on the major alternative routes in the Caballero - Tebicuary section. According to the latter alternative routes, the alternatives proposed for in Martínez are a northern route (M1) and a southern route (M2). The existing route passes from south to north in the town, bending several times. Therefore, the existing route would cause many negative impacts as in the other towns mentioned above.

Environmental evaluation results of the two alternatives show that the Alternative M1 is preferable to the other one. Moreover, public opinion favors the Alternative M1 route because agricultural products in this area are concentrated in the northern part of the town, and the Alternative M1 route would be more convenient for their transport.

Table 4.6 Comparison of Alternative Routes in Martínez

Environmental Items	Alternative Routes			Remarks (+= positive impacts, others are negative)
	E	M1	M2	
(1) Natural Environment				E=Existing road route
① Land (topography and geology)				
② Soil Erosion				
④ Water (hydrological situation)			B	Embankments in lowlands
⑥ Fauna and Flora		C		Need for cutting roadside vegetation
⑧ Landscape				
(2) Social Environment				
① Resettlement	A			Need for resettlement of roadside houses
② Economic Activities		B+		Beneficial for agricultural transport
③ Traffic and Community Facilities	B		--	Existing route passes in front of several community facilities
④ Split of Communities	A			Existing route passes through residential areas
⑤ Cultural Property				
⑧ Waste Disposal				
⑨ Risk of Hazards			B	Risk of inundation over the railway line
(3) Living Environment				
① Air Pollution	B			Contamination by traffic
④ Noise and Vibration	B			Possibility of traffic noise
Comprehensive Evaluation				Alternative M1 route is preferable

(7) Alternative in La Colmena

In La Colmena, only one detour has been proposed, and this passes through the southern part of the town. The existing route passes through the central plaza of the town. Around the plaza, there are many community facilities. Therefore, the alternative route is preferable for avoiding a negative impact on those facilities due to the increased traffic flow in the future.

One problem with the alternative route is that it would involve a loss of agricultural lands in the planned route area. La Colmena is characterized by horticultural products, and there are several orchards along the proposed route, although not in the entire area. As a result, careful selection of an alternative route during the final road design is recommended to minimize the negative impact on the social environment of the town.

Table 4.7 Comparison of Alternative Routes in La Colmena

Environmental Items		Alternative Routes				Remarks (+= positive impacts, others are negative)
		E	L1			
(1) Natural Environment						E=Existing road route
①	Land (topography and geology)					
②	Soil Erosion					
④	Water (hydrological situation)		C			Embankments traversing swampy areas
⑥	Fauna and Flora		C			Need for cutting roadside vegetation
⑧	Landscape					
(2) Social Environment						
①	Resettlement	A				Need for resettlement of roadside houses
②	Economic Activities		B			Loss of cultivated land
③	Traffic and Community Facilities	B				Existing route passes in front of several community facilities
④	Split of Communities	A				Existing route passes through residential areas
⑤	Cultural Property					
⑧	Waste Disposal					
⑨	Risk of Hazards					
(3) Living Environment						
①	Air Pollution	B				Contamination by traffic
④	Noise and Vibration	B				Possibility of traffic noise
Comprehensive Evaluation		A	B			Alternative L1 route is preferable



Department
PARAGUARI
 District
PARAGUARI

Location of Institutions and
 Services in Urban Zone

References

- ① Command of Artillery
- ② Nicanor Pampliega School
- ③ Railway Station
- ④ Pump Station
- ⑤ Corposana
- ⑥ San Blas Church
- ⑦ MAG - Serv. of Agricultural and Livestock Extension
- ⑧ Cemetery
- ⑨ South-American Club Yield
- ⑩ Police Station
- ⑪ Univ. of Technology of Commercialization and Development
- ⑫ Terminal
- ⑬ Market
- ⑭ Internal Tax Office
- ⑮ Church
- ⑯ Governor's office
- ⑰ Antelco
- ⑱ National Bank of Promotion
- ⑲ Faculty of Economy - UNA
- ⑳ Faculty of Philosophy - UNA
- ㉑ Sanitary Position - IPS
- ㉒ Memnon Temple
- ㉓ Santo Tomás Plaza
- ㉔ Mission School - IPS
- ㉕ Education Center - School No.77
- ㉖ Municipality
- ㉗ Service Station
- ㉘ National School of Diversified Medium Education
- ㉙ School for Educational Formation and Specialization
- ㉚ Court of Justice
- ㉛ Sanitary Center - MSP and BS
- ㉜ Club 22 of October
- ㉝ General Bourgeoisie Club
- ㉞ Ypsa Radio
- ㉟ Discharge of Fiscal Charge of Cotton and Tobacco

Routes

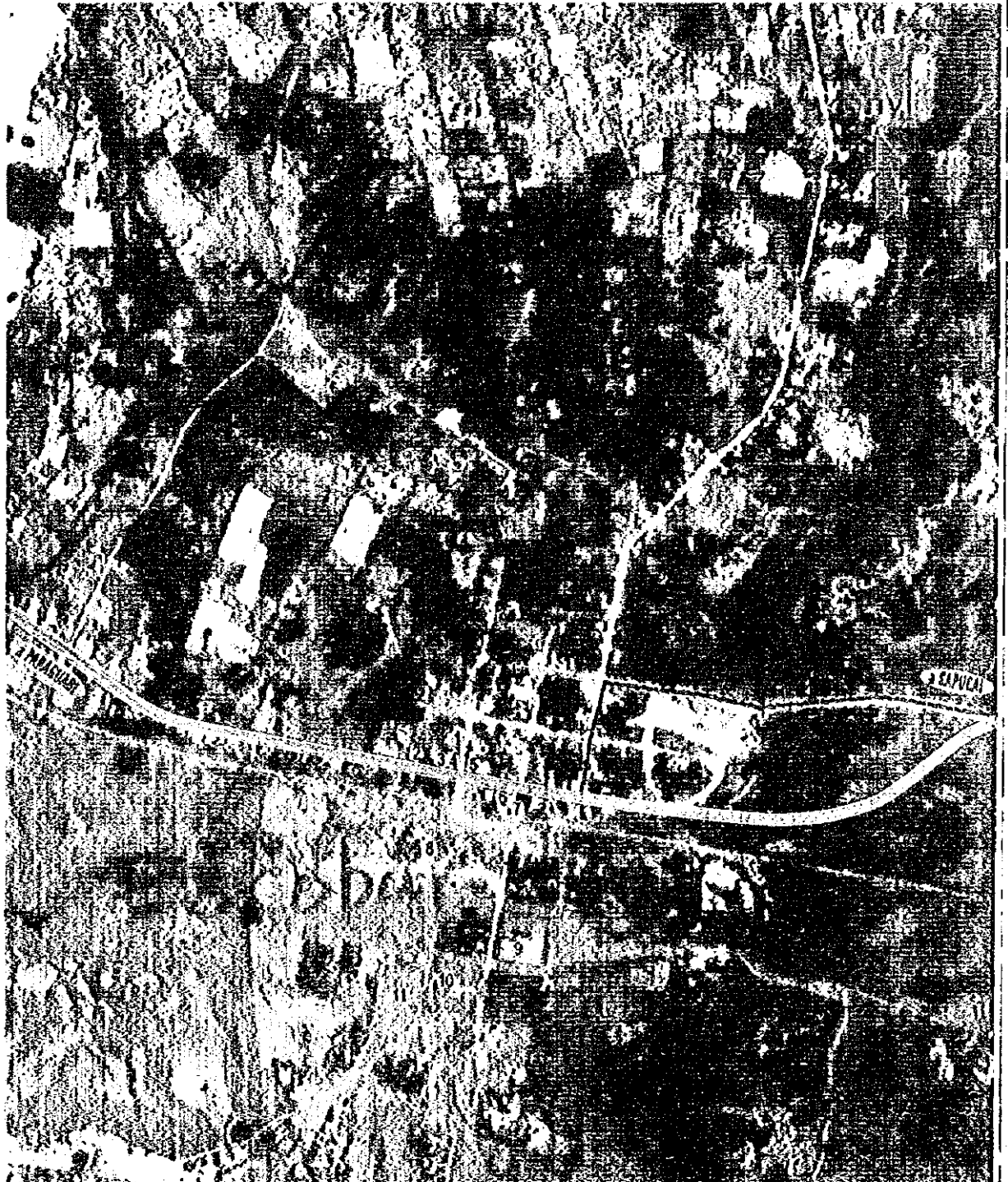
----- Actual

----- Plan

Department : PARAGUARI

District : ESCOBAR

Location of Institutions and Services in Urban Zone



References

- | | |
|--------------------------------------------------|--------------------|
| ① Santa Teresita School | ⑦ Railway Station |
| ② Sanitary School | ⑧ Court of Justice |
| ③ Conunisary of 6 th Patricio Escobar | ⑨ The Heroes Plaza |
| ④ Municipality | ⑩ Church |
| ⑤ Villagra Olimpia Shcool | ⑪ Football Field |
| ⑥ Antelco | |

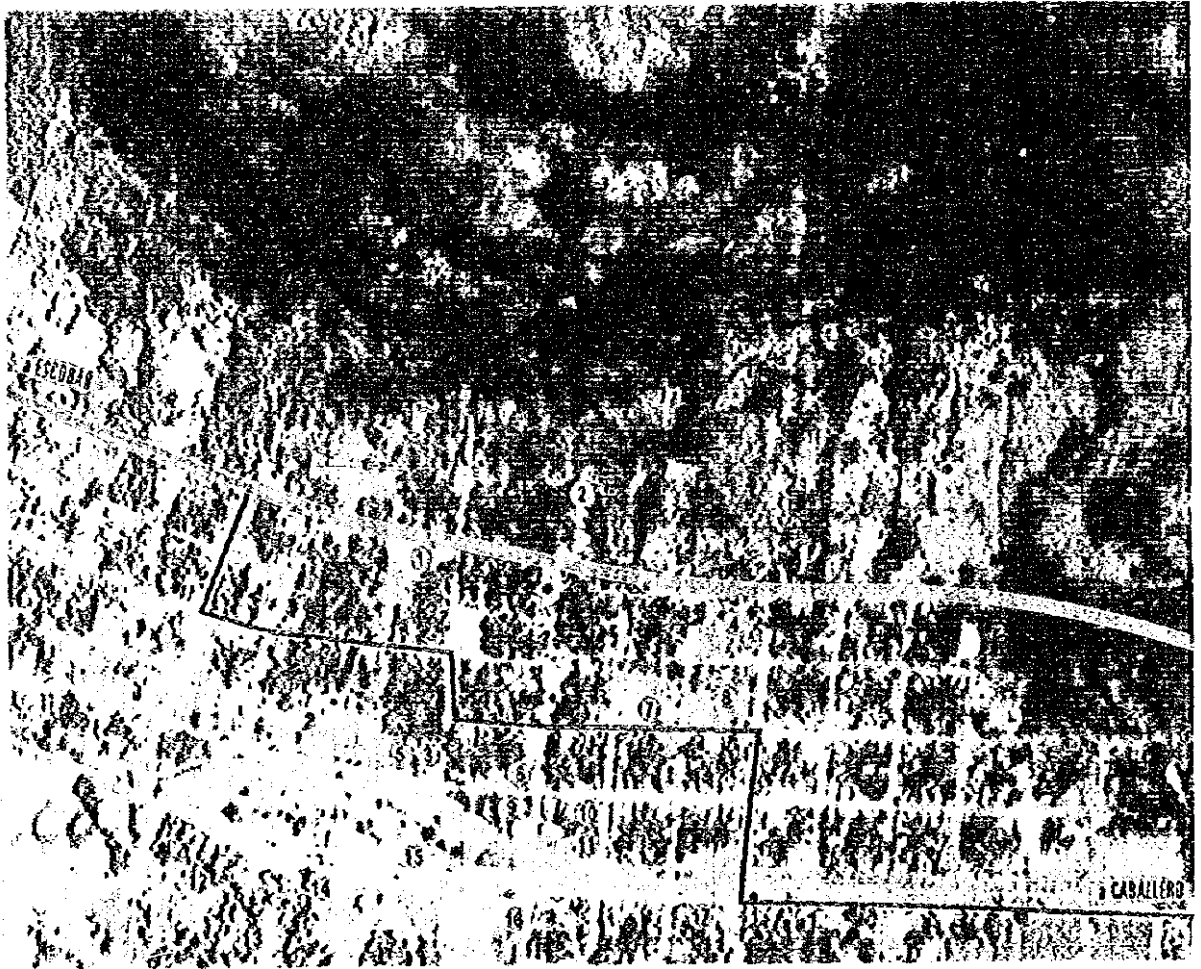
Routes
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Actual
PLANIFICACION DE RUTAS
Plan

Department

PARAGUARI

District : SAPUCAI

Location of Institutions and Services in Urban Zone n la Zona Urbana



References

- | | | |
|-------------------------------------------------------------------|--------------------|--------------------------------|
| ① Cemetery of Church | ⑦ School | ④ Sapucaí Club |
| ② Water Tank | ⑧ Plaza | ⑤ Railway Station and Workshop |
| ③ Service Center of Agricultural
and Livestock Extension - MAG | ⑨ Comisary | ⑥ Football Field |
| ④ Church of Sapucaí | ⑩ Antelco | ⑦ Municipality |
| ⑤ Florencio Zarate School | ⑪ Post Office | |
| ⑥ Sanitary Center | ⑫ Railway Hospital | |
| | ⑬ School | |
| | | Routes |
| | | ----- Actual |
| | | ----- Plan |

Department

PARAGUARI

District : GraL BERNARDINO CABALLERO

Location of Institutions and Services in Urban Zone



- ① Sanitary Center "Pedro Cataldo"
- ② Senaca
- ③ School No 153 Mcal. Lopez
Col. San Luis Gonzaga
- ④ Mcal. Francisco Solano Lopez Plaza
- ⑤ Antelco
- ⑥ Railway Station

References

- ⑦ Sectional Colorada
- ⑧ Commissary
- ⑨ Office of IBR
- ⑩ Plaza and Strip
- ⑪ Post Office
- ⑫ Hotel
- ⑬ Municipality

- ⑭ School
- ⑮ Parochial House
- ⑯ Church
- ⑰ Water Tank
- ⑱ Cemetary

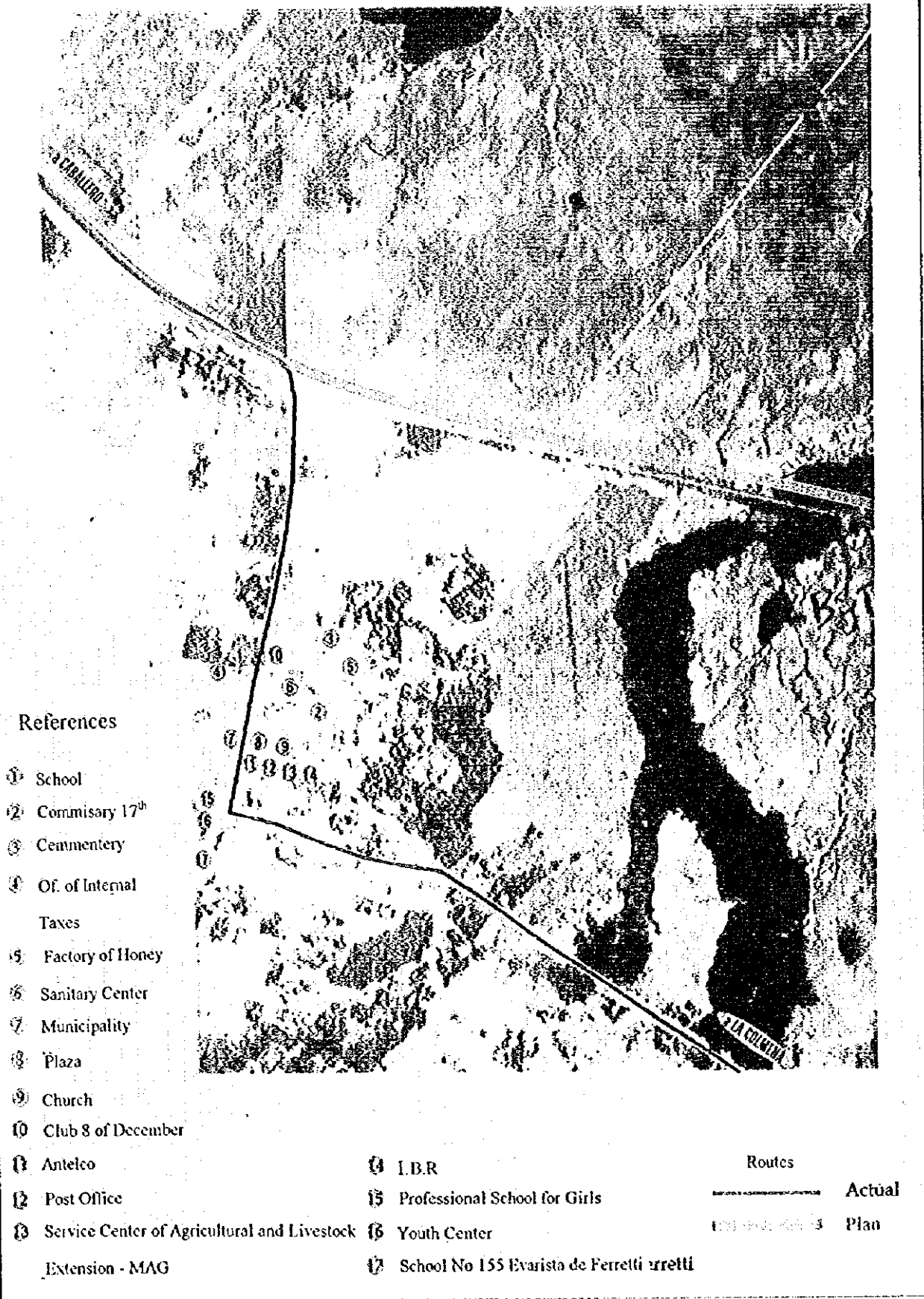
Routes

----- Actual
 - - - - - Plan

Department : PARAGUARI

District : YBYTYMI

Location of Institutions and Services in Urban Zone



References

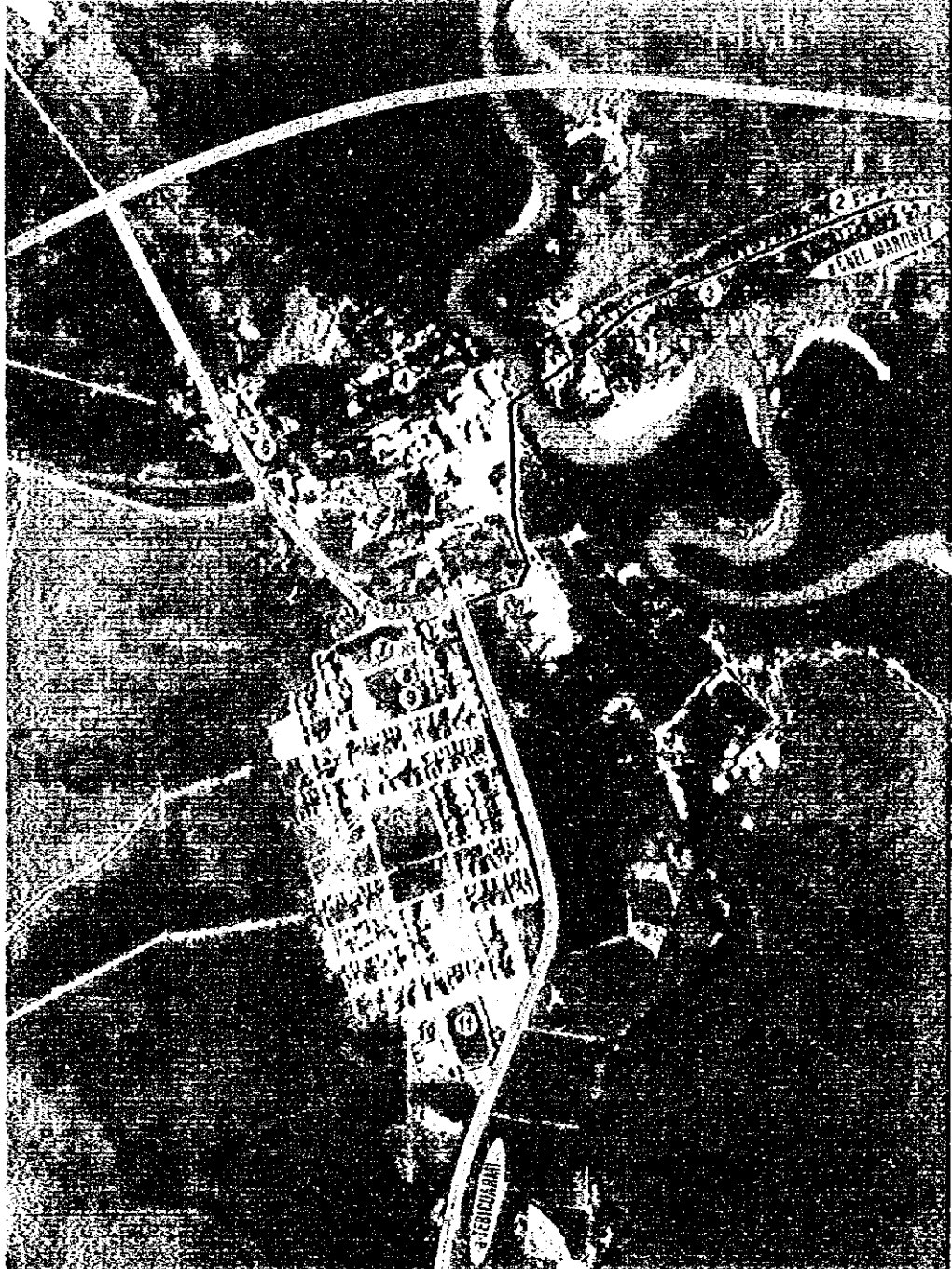
- ① School
- ② Comissary 17th
- ③ Cemmentery
- ④ Of. of Internal Taxes
- ⑤ Factory of Honey
- ⑥ Sanitary Center
- ⑦ Municipality
- ⑧ Plaza
- ⑨ Church
- ⑩ Club 8 of December
- ⑪ Antelco
- ⑫ Post Office
- ⑬ Service Center of Agricultural and Livestock Extension - MAG
- ⑭ I.B.R
- ⑮ Professional School for Girls
- ⑯ Youth Center
- ⑰ School No 155 Evarista de Ferretti

- Routes
- Actual
 - Plan

Department : GUAIRA

Location : TEBICUARY (Dist. Cnel. Martínez)

Location of Institutions and Services in Urban Zone



References

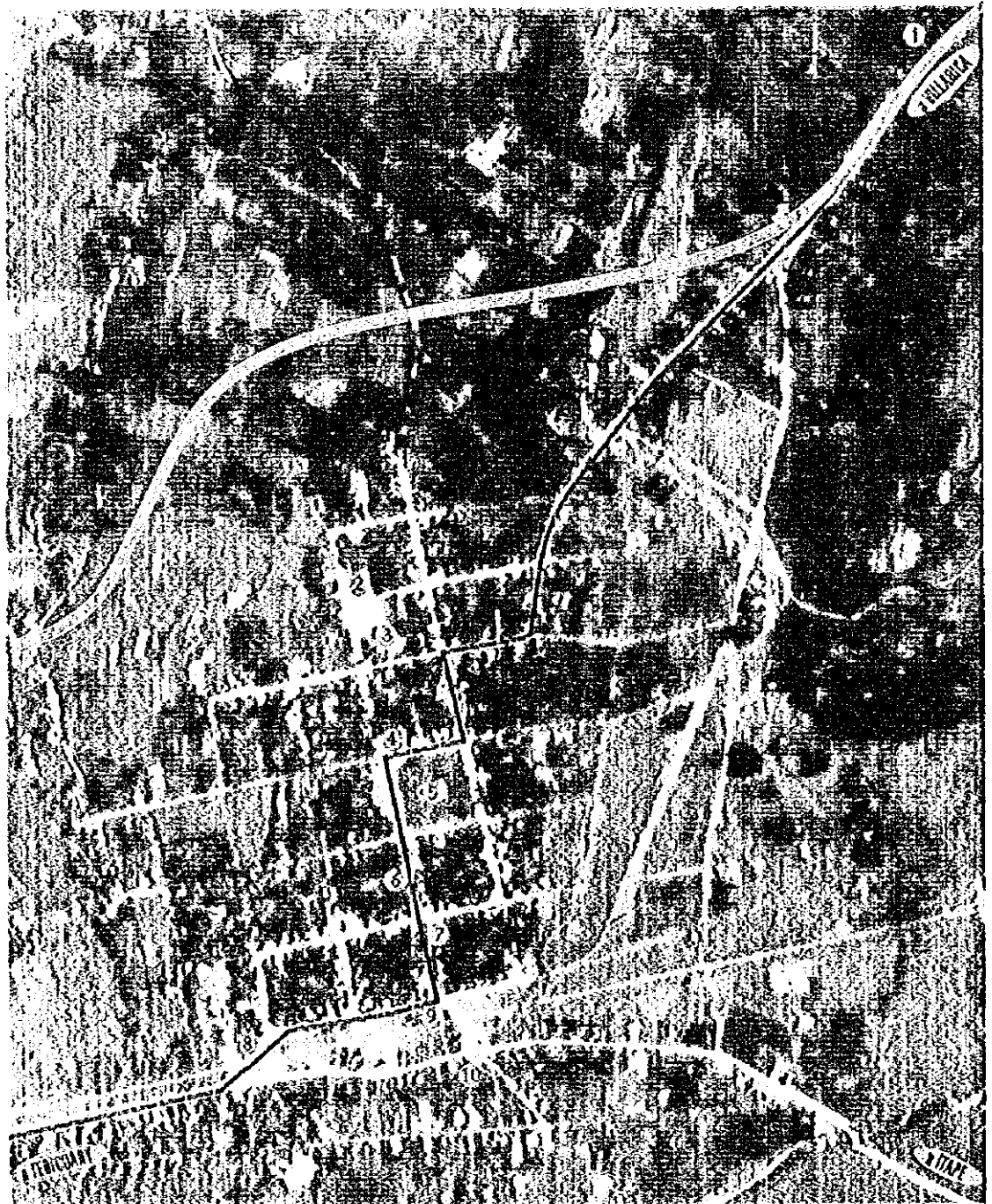
- | | | |
|-----------------------------------------|------------------|------------------|
| ① Football Field | ⑤ School | ⑩ Polideportivo |
| ② Church | ⑥ Antelco | ⑪ Football Field |
| ③ School No. 1384
Don Walter Hoeckle | ⑦ IPS | |
| ④ School No. 56 Antonio Bosa | ⑧ Football Field | |
| | ⑨ Water Tank | |

RUTAS

- Actual
----- Plan

Department : GUAIRA
 District : CORONEL MARTINEZ

Location of Institutions and Services in Urban Zone :



REFERENCIAS

- ① Cementery
- ② National School Coronel Martínez
- ③ School No 55 Don Tirfón Monges González
- ④ Municipality and Antelco
- ⑤ Catholic Church

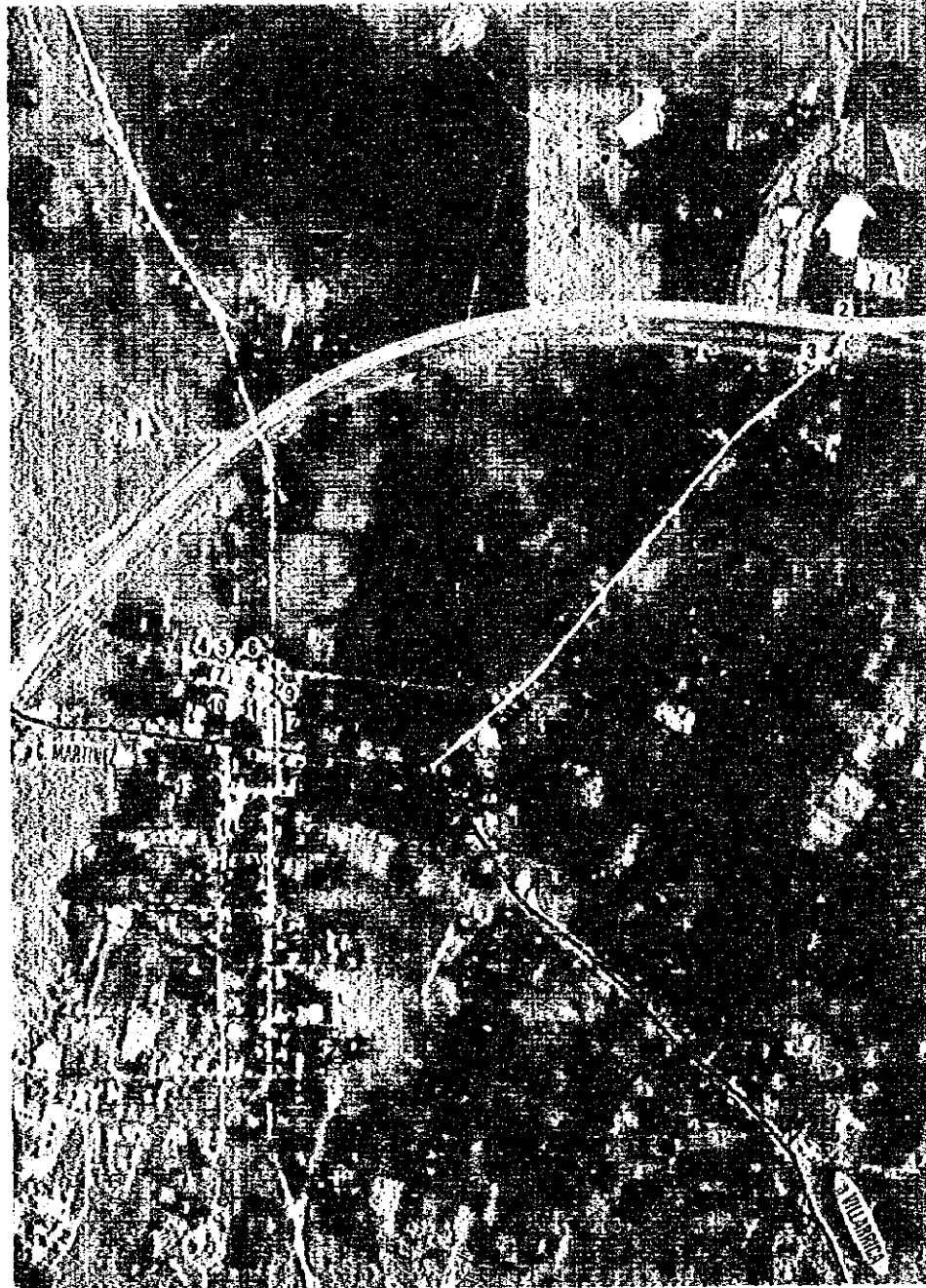
- ⑥ Comisary
- ⑦ Baptist Church
- ⑧ Service Station
- ⑨ Railway Station
- ⑩ Sanitary Center

- Routes
- Actual
 - Plan

Department : GUAIRA

District : FELIX PEREZ CARDOZO

Location of Institutions and Services in Urban Zone



References

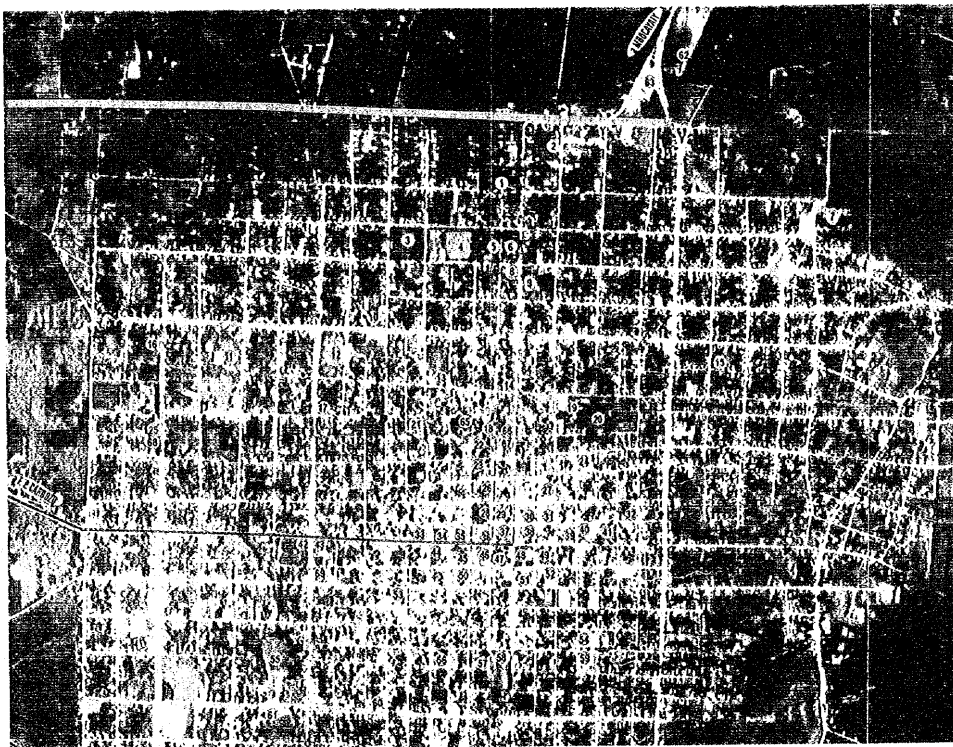
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|-------------------|---------------------------------------------------------------|----------------------------------------------|
| ① Cemetery | ⑦ Parochial House | ⑫ Antelco; General Direction of Post Offices |
| ② School | ⑧ Plaza | ⑬ School for the Defense of Chaco |
| ③ Railway Station | ⑨ Paraguay Union of Veterans:ranos
and Electoral Committee | ⑭ Water Tank |
| ④ Sanitary Center | | |
| ⑤ Commisary | ⑩ School No. 52 Felix Pérez Cardozo | |
| ⑥ Municipality | ⑪ Church | |
- Routes
Actual
Plan

Department
GUAIRA
 District
VILLARRICA

Location of Institutions and
 Services in Urban Zone

References

- ① Regional Center of Education
- ② ZP 14 Radio Culture
- ③ Estero Bellaco Club (Field)
- ④ Silvio Petrirossi Club (Field)
- ⑤ Regional Center of Education
- ⑥ Graciela Stroessner Plaza
- ⑦ North-east Cemetery
- ⑧ Hotel Asuncion
- ⑨ Nuestra Señora de la Asunción Church
- ⑩ Coposana
- ⑪ School for Professional Technology
- ⑫ North-east Cemetery
- ⑬ Cerro Cará Club (Field and Social Center)
- ⑭ Hotel Ybityruzú
- ⑮ San Miguel Church
- ⑯ Regional Hospital
- ⑰ San Antonio Church
- ⑱ Club Estero Bellaco (Social Center)
- ⑲ Yema Pytá Studio
- ⑳ Ortíz Guerrero Park (Pool)
- ㉑ Hospital - IPS
- ㉒ Paraguayan - American Cultural Center
- ㉓ Lumiere Cinema - Paraná Bank
- ㉔ Commercial Center No. 1
- ㉕ Virgen de Fátima Church
- ㉖ Nation Bank Argentina
- ㉗ Terminal of Omnibus
- ㉘ Plaza de los Héroes
- ㉙ Municipality



- ㉚ Hotel Guairá
- ㉛ Direction of Internal Taxes
- ㉜ Club Novel
- ㉝ ZP 6 Radio Guairá
- ㉞ Paulino Gymnasium
- ㉟ Antelco
- ㊱ National Bank of Promotion
- ㊲ Centro Español, Supervision of Schools
- ㊳ Bishopric
- ㊴ ZP 22 Radio Panambi Verá

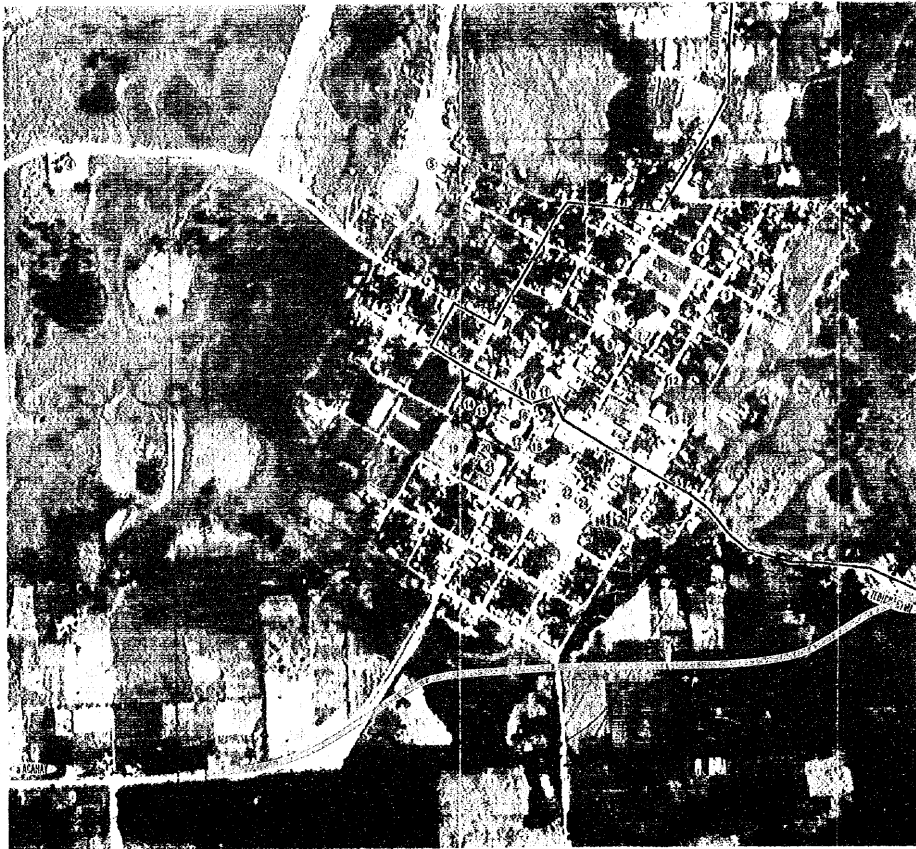
- ㊵ Seccional Colorada
- ㊶ Plaza Dr. Virgilio Legal
- ㊷ Plaza Silvio petrirossi
- ㊸ President Stroessner School
- ㊹ Supervision of Schools, Court of Justice
- ㊺ Court of Justice
- ㊻ Delegation of Government
- ㊼ Plaza Libertad
- ㊽ Cathedral Church
- ㊾ Museum, School of Art, First Aid

- ㊿ Club Porvenir Guairafco
- 1 Alianza Francesa, Paraguayan - German Cultural Center
- 2 Chapel and Don Bosco School
- 3 Commercial Center No 2
- 4 Don Bosco School (Sports Field)
- 5 Club Olimpia (Field)
- 6 Lions Club
- 7 School of Arts and Office Pio XII
- 8 Minor Seminary
- 9 Chapel and School Don Bosco

- 10 Club Olimpia (Social Center)
- 11 Club Atlético Guaraní (Field)
- 12 Landing Strip
- 13 Service Station
- 14 Terminal
- 15 University of the North
- 16 Baptist Church
- 17 Service Station
- 18 Commissary of Lomas Valentinas
- 19 Christian School

Routes

----- Actual
 ----- Plan



Department
PARAGUARI
 District
LA COLMENA
 Location of Institutions and
 Services in Urban Zone

References .

- ① MAG - Serv. of Agricultural and Livestock Extension
- ② Sports Center of La Colmena
- ③ Sanitary Center
- ④ Cementery
- ⑤ Airport
- ⑥ School No.128 Paraguay - Japan "La Colmena Py"
- ⑦ National School Agustín Miranda
- ⑧ National Bank of Promotion
- ⑨ Antelco
- ⑩ Office of Internal Taxes
- ⑪ Municipality
- ⑫ Post office
- ⑬ Security Center - Water and Road
- ⑭ Plaza Kunito Miyazaka
- ⑮ Adventista Japonesa Church
- ⑯ Cooperative
- ⑰ Paraguay - Japan Cultural Center of La Colmena
- ⑱ Conitary 7ª La Colmena
- ⑲ Football Field
- ⑳ San Francisco Javier School
- ㉑ Church
- ㉒ Terminal of Omnibus
- ㉓ Plaza
- ㉔ Municipal Market of Daily goods

Routes

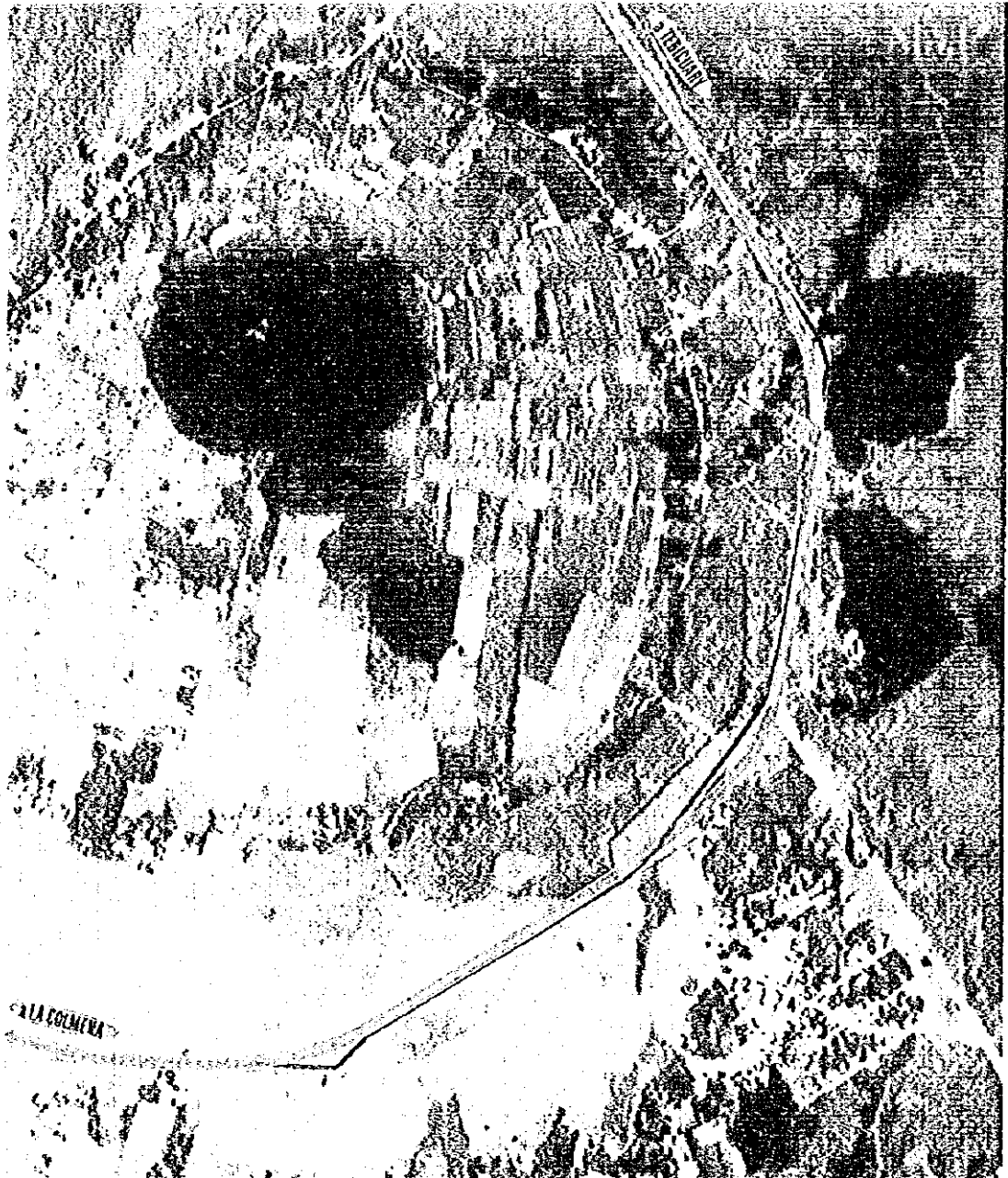
————— Actual

————— Plan

Departamento : PARAGUARI

District : TEBICUARYMI

Location of Institutions and Services in Urban Zone



References

- | | |
|--------------------|----------------------------|
| ① School | ⑥ Market |
| ② School | ⑦ Comisary |
| ③ Court of Justice | ⑧ Sanitary Center |
| ④ Church | ⑨ Office of Internal Taxes |
| ⑤ Antelco | |

- Routes
- Actual
- Plan

JICA