International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES)

Impact Factor: 5.858 (SJIF-2019), e-ISSN: 2455-2585

Volume 6 , Issue 7 , July -2020

ROTATRY CROSSROAD DESIGNING IN AUTOCAD CIVIL 3D SOFTWARE

Lal Anand Chandra[1] , Dr. R.K.Pandey[2],Er. Atul[3], Akhilendra Bahadur Singh[4]

[1]*PG Student Department of Civil Engineering, Vaugh Institute of Agriculture Engineering and Technology Sam Higginbottom University of Agriculture Technology and Science, Prayagraj , U.P,India.*

[2]*Professor Department of Civil Engineering, Vaugh Institute of Agriculture Engineering and Technology Sam Higginbottom University of Agriculture Technology and Science, Prayagraj , U.P,India*

[3]*Assistance Professor Department of Civil Engineering, Vaugh Institute of Agriculture Engineering and Technology Sam Higginbottom University of Agriculture Technology and Science, Prayagraj , U.P,India*

***Abstract*—Good transportation infrastructure is most important in our country. If transportation infrastructure are good then country developing very fast. Because in good transportation infrastructure we can build expressways, highways, road, etc. Anyone can travel easily from one place to another place and it is more helpful for goods services to transport from one place to another place. In this paper we have to study about how to design rotatry crossroad with the help of AUTOCAD Civil 3D Software.**

***Keywords*— Rotatry Crossroad, Highway, AutoCAD Civil 3D, Volume Report, Cutting and Filling Report.**

INTRODUCTION

In India population problem growing very fast and the high population problem become the high traffic problem in our country. This time everyone buying own vehicles to travel. In our country there is high amount of vehicles and it becomes more conjection in road. High amount of vehicles running in highways and highways is most important in our busy life. It is easy to travel one place to another place and it also easy for commercial use to transport their goods one place to another place by the road transportation. Due to road transportation it take more time to travel by traffic jam problem. According to design rule rotatry crossroad IRC 65 minimum 600PCU/Hr and minimum 4000PCU/Hr we got high amount of traffic in medical chauraha in peak hour.

The high amount of traffic creating by traffic jam and the high amount of traffic conjection problem coming in many urban area of Prayagraj city. High speed of vehicles are running in highway and under the cities road. Vehicles high speed is very major problem because it high speed create the accident problem in highways. We have to solve the traffic problem by making crossroad.

In this paper which location is mentioned there is high amount of traffic problems comes. We have to design the crossroad with the help of AUTOCAD Civil 3D Software and solving the traffic problem. Crossroad is divided in two parts because traffic are running their opposites direction and it is easy to take left turn and right turn by crossroad. It is very difficult to give the crossroad in highway because vehicles are running very high speed and moving through their opposite direction. A lots of vehicles comes another and another direction and it pass through central island in single direction. High amount of traffic problems increasing every single day. By the AUTOCAD Civil 3D Software we have to design crossroad and it take less time and less money and it solves also traffic jam problem. If traffic ratio going down then accident problem ratio also going down.

DESIGN METHODOLOGY

A. STUDY AREA AND LOCATION

In this paper area which we have to study about Gandhi Marg and Lowther road area and it is located in mEdical chaurah in Prayagraj, U.P

Fig.1 Google map image of the study area

B. DATA COLLECTION

The data which required for the designing the geometry of highway and crossroad from the ground surface data. The file extension as point cloud information is form by survey information.

C. DESIGN CRITERIA CROSSROAD

- Radius of central island = 30m
- Number of lanes = 4
- Entry radius = 25m
- Exit radius= 45m
- Entry width = 8m
- Exit width = 8m
- Weaving width = 12m
- Weaving length = 35m
- Carriageway width = 15m
- Design speed = 35kmph

D. CROSSROAD DESIGN PROCEDURE

- Take the cloud file into the Civil 3D software
- Make alignment profile
- Make assembly for corridor
- Make surface
- Make corridor for alignment
- Make alignment on the surface
- View in object viewer

In the below figures showing the procedure of crossroad

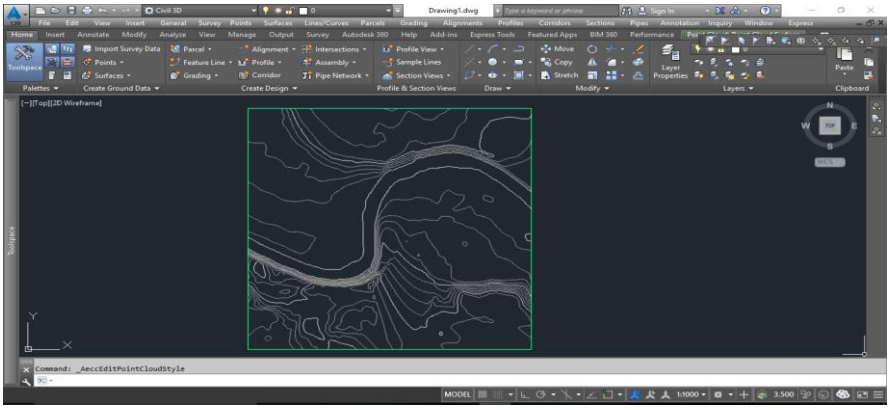

Fig.2 Point Cloud Surface

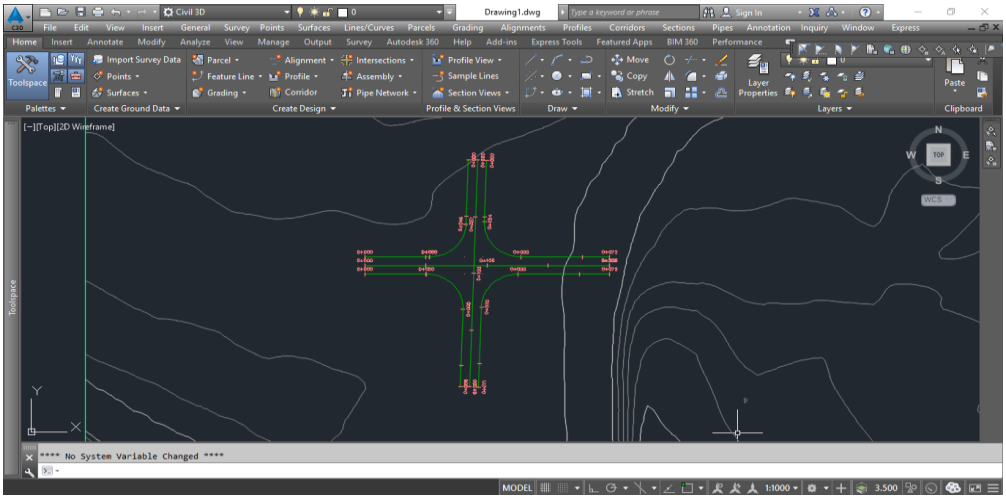

Fig.3 Alignment of Crossroad

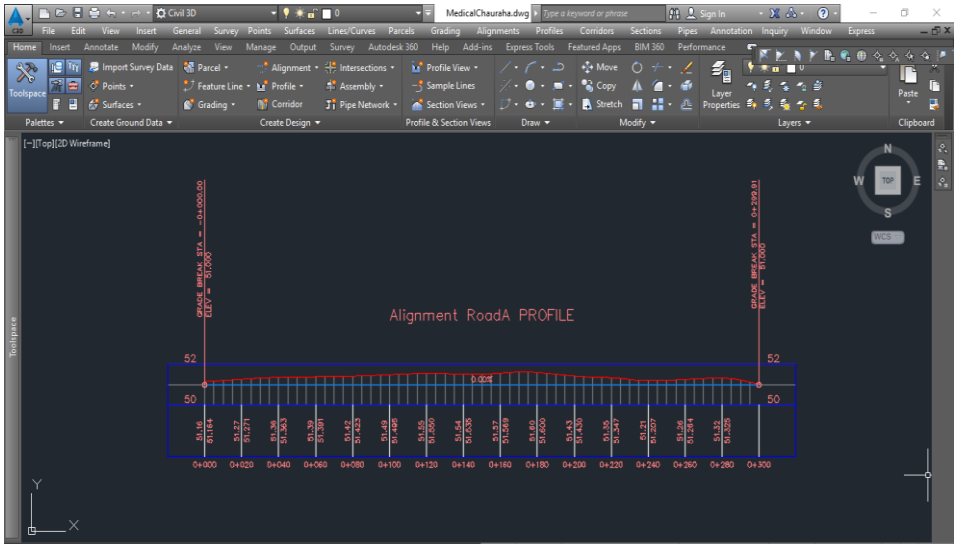

Fig.4 Alignment of Road A Profile

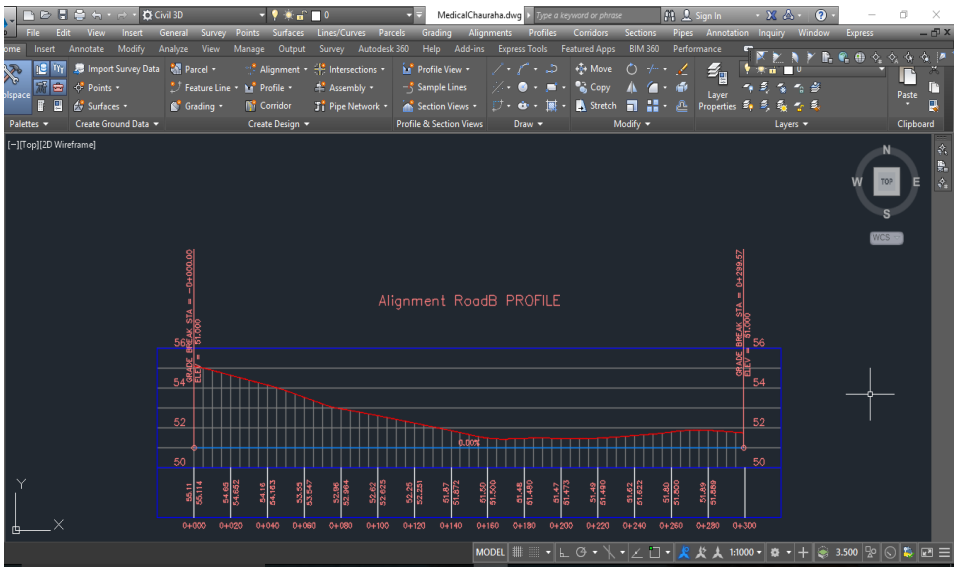

Fig.5 Alignment of Road B Profile

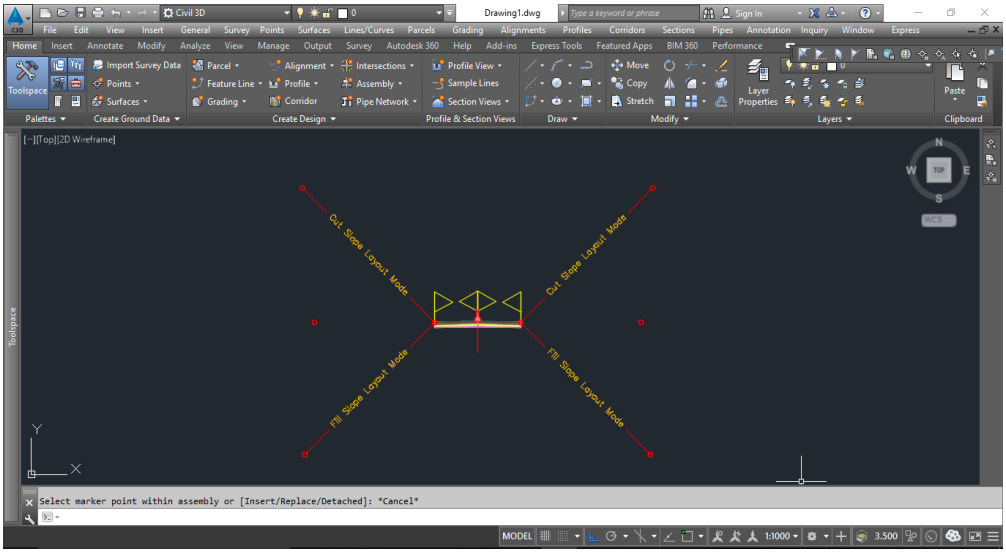

Fig. 6 Assembly for corridor

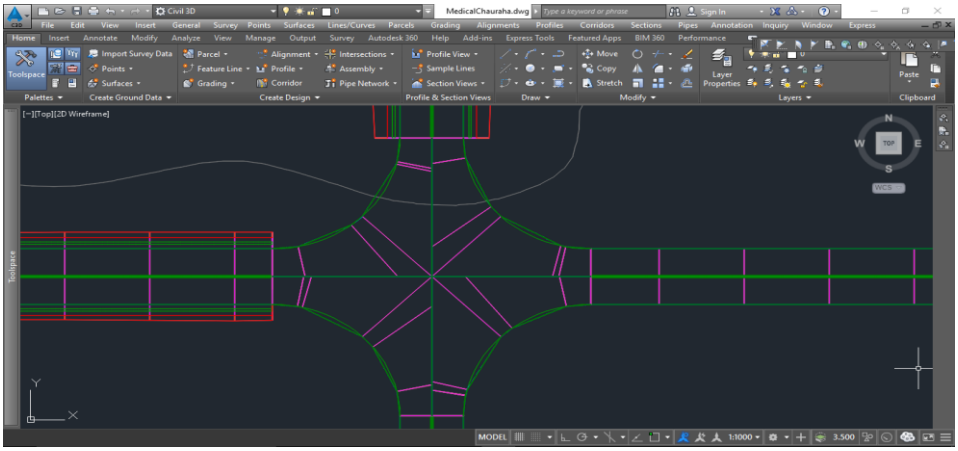

Fig.7 Corridor of the crossroad

CONCLUSIONS

1. To completing the designing process by the help of AUTOCAD Civil 3D Software and it takes less time and less efforts of work.
2. If we completing the manually designing process it takes lots of time and lots of money and lots of efforts.

REFERENCES

1. Data. Available from https://www.autodesk.com/products/autocadcivil-3d/features/all.
2. https://www.google.com/maps
3. IRC 65: Recommended Practice for Traffic Rotaries, 1976, Indian Road Congress.
4. IRC SP 041: Guidelines for Design of At-Grade Intersections in Rural and Urban Areas.
5. https://en.wikipedia.org/.
6. S.K., New Chand and Bros, F.Khanna and Justo, C.E.G (2011), "Highway Engineering", , 9th Edition, New Delhi.